PRINCE WILLIAM SOUND MANAGEMENT AREA

1998 ANNUAL FINFISH MANAGEMENT REPORT

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TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF APPENDICES (con't)

LIST OF APPENDICES (con't)

LIST OF APPENDICES (con't)

LIST OF APPENDICES (con't)

LIST OF APPENDICES (con't)

LIST OF APPENDICES (con't)

LIST OF APPENDICES (con't)

LIST OF APPENDICES (con't)

1998 Prince William Sound Salmon Fisheries

Management Area Description

The Prince William Sound (PWS) management area encompasses all coastal waters and inland drainages entering the northcentral Gulf of Alaska between Cape Suckling and Cape Fairfield (Appendix A.1). This area includes the Bering River, Copper River and all of Prince William Sound with a total adjacent land area of approximately 38,000 square miles.

The salmon management area is divided into eleven districts that correspond to the local geography and distribution of the five species of salmon harvested by the commercial fishery. The management objective for all districts is the achievement of escapement goals for the major species while allowing for the orderly harvest of all fish surplus to spawning requirements. In addition, the department follows regulatory plans to manage fisheries and assist private non-profit (PNP) hatcheries in achieving cost recovery and broodstock objectives.

Six hatcheries contribute to the area's fisheries. Five are operated by the regional aquaculture association, Prince William Sound Aquaculture Corporation (PWSAC). The Gulkana Hatchery in Paxson augments the production of sockeye salmon to the Copper River. The Cannery Creek Hatchery located on the north shore of the Sound, and the A.F. Koernig Hatchery (AFK) in the southwestern Sound produce pink salmon, the Noerenberg Hatchery in the northwestern Sound produces pink, chum, coho and chinook salmon and the Main Bay Hatchery in the western Sound produces sockeye salmon. Valdez Fisheries Development Association (VFDA) operates the Solomon Gulch Hatchery in Port Valdez and produces pink and coho salmon.

Gear for the salmon fishery includes purse seine, drift and set gillnet. Drift gillnet permits are the most numerous and are allowed in the Bering River, Copper River, Coghill, Unakwik and Eshamy Districts. Set gillnet gear is allowed only in the Eshamy District. Purse seine gear is allowed in the Eastern, Northern, Unakwik, Coghill, Northwestern, Southwestern, Montague and Southeastern Districts (Appendix A.2.).

As an avenue for the commercial fishing industry to formally provide management recommendations to the department, representatives from area processing, gear groups, and aquaculture associations sit on an advisory body known as the PWS Salmon Harvest Task Force (SHTF).

Five herring fisheries occur during the year. Four of the herring fisheries occur in the spring; gillnet sac roe, purse seine sac roe, spawn-on-kelp not in pounds, and spawn-on-kelp in pounds. A herring food/bait fishery occurs in the fall. All of the herring fisheries are managed for a guideline harvest level established by the Prince William Sound Herring Management Plan, 5 AAC 27.365. The management objective for herring is to target fisheries on a high quality segment of the biomass.

Overview of Area Wide Fisheries

The 1998 Prince William Sound Area commercial salmon harvest of 31.94 million fish is the sixth highest on record. The harvest was comprised of 28.69 million pink, 1.7 million sockeye, 1.27 million chum, 195,000 coho, and 70,910 chinook salmon. The majority of the catch, 22.4 million, was common property harvest and 9.5 million were sold for hatchery cost recovery (exclusive of post egg-take roe sales).

The estimated value of the combined commercial salmon harvest, including hatchery sales, is $36.8 million. During the 1998 season, 522 drift gillnet permit holders fished. The drift gillnet catch is valued at $18.23 million, setting the average earnings at $34,922 per permit holder. The set gillnet catch is valued at $195,079, setting the average earnings of the 16 participating permits at $12,192. The seine fishery was worth $9.77 million for an average exvessel value of $65,589 for the 149 permit holders that participated this year. Revenue generated for hatchery operations (exclusive of post egg-take roe sales) was approximately $8.58 million (Appendix A.5).

1998 SEASON SUMMARY BY DISTRICT

Copper River District

Preseason Outlook and Harvest Strategy

The 1998 harvest forecast for the Copper River District was 50,000 chinook, 1.9 million sockeye, and 320,000 coho salmon. The Gulkana Hatchery, located north of Paxson Lake, was expected to contribute approximately 280,000 sockeye salmon to the commercial catch.

The 1998 sockeye salmon harvest of 1,340,000 was the fourth largest on record (Appendices B.1, B.2 and B.3). The harvest of 68,800 chinook salmon was the largest harvest on record in spite of the area restrictions during the May 14 commercial period. The inriver goal past Miles Lake sonar of 617,000 salmon was exceeded with an estimated 867,000 salmon passing the sonar site. The sockeye aerial escapement index for the Copper River Delta systems was 87,500, slightly below the index goal of 89,000.

The traditional fishing schedule for the Copper River District is two 24-hour periods per week. Periods begin at 7:00 a.m. on Mondays and 7:00 p.m. on Thursdays. The lengths of fishing periods are adjusted by emergency order as needed. After August 7, coho management begins with two 24-hour periods per week, which is adjusted as needed, based on run strength. Fishing periods during the coho fishery begin at 12:00 noon.

Early in the season, management of the Copper River District is based on the actual harvest as compared to the anticipated harvest. This is the most reliable method of evaluating early run strength prior to the installation of the inriver sonar at Miles Lake. In late May, sonar counts and commercial harvest information become the primary factors governing management of the fishery. The inriver goal for the upper Copper River was increased in 1998 to 617,000 salmon. This increase occurred at the Board of Fisheries (BOF) meeting in December 1996, which provided an increase in the personal use fishery from 60,000 to 100,000 salmon and also authorized the department to set the subsistence harvest annually based on past performance. However, if the commercial fishery is closed for 13 consecutive days due to poor run strength, the personal use allocation drops to 50,000 salmon.

By mid-June, aerial estimates of sockeye escapement in the Copper River Delta systems become an additional consideration when scheduling commercial fishing periods. Due to the many spawning systems in the lower Copper River Delta, an actual weekly escapement index of selected sockeye systems is compared to an anticipated weekly escapement index. The escapement index goal for the Copper River Delta is 89,000 sockeye salmon.

Season Summary

The 1998 commercial fishing season began at 7:00 p.m. Thursday, May 14. The harvest of 49,600 sockeye and 12,200 chinook salmon was slightly above the projected harvest for sockeye salmon and nearly double the projected harvest for chinook salmon (Appendices B.2 - B.6). As stated in the Copper River Chinook Salmon Fishery Management Plan 5AAC. 361, five percent of the potential chinook salmon harvest from the commercial fishery must be allowed to migrate upriver. To achieve this, the area inside of the barrier islands from Pete Dahl Entrance to the east side of Kokenhenik Island was closed during the first 24-hour period (Appendix B.7).

ADF&G personnel who operate the Miles Lake sonar were on site May 12. However, the water level of the Copper River was slightly below average and ice still remained on the river at the sonar site. The area's weather up to this point can be characterized as a somewhat mild breakup. By the evening of May 17, Miles Lake was predominately free of ice and sonar operations began at midnight on May 18. Shore ice from Miles Lake hampered sonar operations for most of May. The sonar site at Miles Lake is comprised of two Bendix side scan sonar counters. Transducers are deployed on a tripod early in the season when water levels are low and moved to the permanent concrete pads and rails as water levels rise. The first day of operation on May 18 estimated 158 salmon versus an anticipated count of 2,141 salmon (Appendices B.8 and B.9). Species apportionment between chinook and sockeye is not one of the objectives of the Miles Lake project. The inriver ratio of sockeye to chinook salmon approaches 100 to 1 and the two species' migration patterns are not alike. Chinook have a tendency to migrate further offshore and out of the ensonified zone of the sonar counter, whereas sockeye salmon have a near shore migration pattern. The migration time for salmon to travel from the commercial fishing district to the sonar site ranges from seven to nine days depending on the water level of the Copper River.

Initial fish counts past the sonar site were below expected. However, with a higher than projected harvest of both sockeye and chinook during the first period, a second 24-hour period was scheduled to begin at 7:00 a.m. Monday, May 18. This second period would further help assess the strength of the salmon return. Weather conditions during the second period were poor with winds at 40 knots for most of the fishing period. The harvest of 69,500 sockeye was slightly below the projected harvest, mainly due to the adverse weather. The chinook harvest was again above the projected harvest with 11,900 caught versus the projected catch of 7,850 fish. The passage rate past Miles Lake sonar on May 19 was 254 fish per day, less than 10% of the projected passage. Because daily sonar passage was roughly 10% of the desired level and because the commercial harvest was not indicating a similar run strength as seen in 1996 and 1997, the third commercial fishing period was reduced to 12-hours for the Friday, May 22 opening.

The third period occurred during a storm warning with winds of up to 60 knots. A storm of this magnitude limited the drift gillnet fleet's effort and efficiency. Only 441 permit holders fished during the third period as compared to 490 and 496 in 1996 and 1997 respectively. The harvest from the 12-hour period was 10,754 chinook and 82,000 sockeye. The projected harvest for a 24-hour period was 7,350 chinook and 120,000 sockeye. It was apparent that the sockeye run to this point was far less than the previous two year's returns. However, the continued high chinook harvest was indicating a record return was underway. Daily counts past the Miles Lake sonar increased but remained below the expected counts. Through Friday, May 22, the anticipated cumulative count past Miles Lake was 15,500 fish versus the actual cumulative count of 3,339 fish. However, daily passage rates continued to increase and it appeared that actual passage rates would soon be in line with the projected rates. With escapement past

Miles Lake improving but still a concern, the Copper River District was opened for a 12-hour period on May 27. Weather conditions had improved and the harvest was 8,624 chinook and 108,893 sockeye.

The next scheduled announcement was 12:00 noon Wednesday, May 27. The cumulative count past Miles Lake sonar through May 26 was 19,707 versus an anticipated count of 37,700 salmon. Daily passage rates were increasing and, with the poor fishing weather and the time restrictions placed on the commercial fleet earlier, it was felt that the actual daily salmon passage past the sonar would improve. The Copper River District opened for a 24-hour period beginning at 7:00 p.m. Thursday May 28. Again, severe weather conditions hampered the fishery, limiting the harvest to 6,224 chinook and 58,634 sockeye salmon. The sockeye catch was substantially lower than the projected catch of 160,000 fish. The cumulative harvest to date was 368,731 sockeye and 49,667 chinook salmon versus the projected harvest of 551,871 sockeye salmon and 34,144 chinook salmon.

The actual cumulative salmon counts past Miles Lake sonar exceeded the projected counts on May 31. By that date, 91,679 fish had been counted versus the projected count of 80,811 fish. Daily passage rates were more than double the projected through June 4. With passage rates exceeding the projected, the Copper River District was opened for two 24-hour periods per week through June 23. Aerial surveys of the lower Copper River Delta systems began on June 1 with approximately 150 sockeye in Middle Arm of Eyak Lake and 100 in the Martin River system (appendix B.10 and B.11.). The next survey on June 15 observed 9,610 sockeye versus the anticipated count of 20,765 fish. Actual sockeye salmon escapement into the Copper River delta systems continued to trail the desired escapement however, daily fish passage past the Miles Lake sonar was exceeding the projected daily passage. By June 23, the cumulative passage was 492,450 fish versus a projected count of 323,829 fish. An aerial survey of the lower delta systems on June 22 observed 17,500 sockeye versus a projected count of 25,875 sockeye. Escapements into the lower delta systems were building but not at a rate which would meet the Biological Escapement Goal (BEG) set for the delta systems. A complete closure to the commercial fishery would be a net increase for the delta stocks, but would also dramatically increase upriver escapement. The best approach would be to fish two periods per week with a reduction in time. This would allow for both a harvest of surplus upriver stocks and an increase in the lower delta system sockeye salmon escapement. The June 26 and June 29 periods were reduced to 12-hours.

An aerial survey on Tuesday, June 30 observed 35,550 sockeye in the Copper River Delta systems. The anticipated escapement for the week ending July 4 was 41,250. Passage rates past the sonar continued at twice the projected through July 2 and remained above the projected for all but nine days until the sonar was pulled on August 3. An aerial survey on July 7 under fair to poor conditions observed 36,825 sockeye versus an anticipated count of 28,850 fish. With escapement goals for both the upper and lower Copper River being met, fishing time was increased to two 36-hour periods per week until August 10 when management switched to coho salmon.

The Miles Lake sonar project ended on August 3, with a cumulative estimate of 866,957 salmon having passed the counter. The aerial survey index of sockeye salmon escapement within the lower delta systems was 87,500 fish, slightly less than the index goal of 89,000 fish. Aerial surveys of the Upper Copper River chinook and sockeye salmon spawning systems were conducted on July 17 through 19. A total of 5,045 chinook were observed in the nine index systems (Appendix B.12). The anticipated aerial index is 3,000 chinook. Of the 13 index streams surveyed for sockeye salmon, a total of 55,040 sockeye were observed. The projected counts for those systems was 40,250 sockeye salmon (Appendix B.13).

Coho Salmon Fishery

The coho salmon harvest of 108,232 was only 33% of the projected harvest of 325,000 (Appendix B.14). The coho season officially began on August 10. The fishing schedule was two 24-hour periods per week with adjustments based on the run strength. Prior to 1997, the recommendation by the SHTF was for a single 48-hour period per week with adjustments to the schedule based on the strength of the run. However, during the strike in 1996, one of the recommendations by the fishermen to the processors was to adjust the schedule to two 24-hour periods per week to improve quality. This recommendation carried over to the SHTF and is currently the management strategy.

Effort during the August 10 period was 207 permits, slightly above average for this time. The projected harvest for the week ending August 15 was 26,000 coho; the actual harvest was 34,746. The sex ratio during the week averaged 44% which was slightly above average (39.4%), indicating the run was tracking slightly ahead of schedule. An aerial survey of the Copper River Delta on August 11 observed 1,400 coho versus an anticipated aerial index of 3,750 (Appendix B.15). Based on a slightly better than expected harvest, and sex ratios projecting the run was approximately 46% complete, it was felt that the run was slow entering fresh water but would have little problem making the escapement goals. With the run projecting to come in slightly less than forecast, a 24-hour period was scheduled for 12:00 noon Monday, August 17. The harvest from Monday's period was 19,240, slightly more than the previous period but less than the weekly goal of 50,000. An aerial survey on August 18 observed 4,175 coho salmon. The projected count was 11,700 fish. With the harvest continuing to increase and escapement behind but building, a second 24-hour period occurred at 12:00 noon on Thursday, August 20. The harvest dropped during the period to 16,808 coho. With catch rates declining, the district closed until escapement improved. The next aerial survey occurred on August 27 and some improvement was observed. The anticipated aerial index was 17,750 versus the actual count of 7,835 coho. With little change in escapement, the Copper River District did not open during the week of August 30.

The subsistence fishery for the lower Copper River Delta is only open during commercial fishing periods. To provide for reasonable opportunity for subsistence fishing of coho salmon in the Copper River District, an emergency order was issued to open the Copper River District to subsistence fishing effective 9:00 a.m. Thursday, September 3. In addition to providing an opportunity for subsistence harvesting, the department was able to interview participants on their fishing activity. If coho were holding offshore and reluctant to move into fresh water, participants in the subsistence fishery would have little trouble harvesting their limits. In numerous cases, it took several tides to catch fish and many hour-long drifts produced no fish. This information substantiated that the coho return was poor and would not support an ongoing commercial harvest. The subsistence fishery remained open seven days per week until September 30 when it closed by regulation. Commercial harvesting of salmon within the Copper River District ended at 12:00 noon Friday, August 21 for the remainder of the season.

Aerial surveys were typically conducted under fair to moderate conditions through mid September. No surveys were conducted between September 15 and October 21 when the last survey was completed. Inclement weather during that period created poor survey conditions. In general, it takes three or four days for systems to recede and clear after heavy rainfall. Due to the poor survey conditions in 1998, no estimated peak aerial index was possible (Appendix B.16). Based on past year's estimates and the actual observed index for 1998, it is felt the escapement index, had weather permitted, would have been in the area of 45,000 to 49,000 coho salmon. The goal for the Copper River Delta is 50,000.

Bering River District

Preseason Outlook and Harvest Strategy

The 1998 harvest forecast for the Bering River District was 20,000 to 30,000 sockeye salmon and 139,000 coho salmon. Commercial fishing periods in the Bering River District generally coincide with the Copper River District. The Bering River District escapement index goal is 26,600 for sockeye salmon and 22,200 for coho salmon.

The sockeye salmon harvest of 8,439 was slightly less than half the preseason projection and the lowest since 1990 (Appendix B. 20). The harvest of 12,284 coho salmon was also below preseason expectations. The observed escapement indices for the Bering River system were 22,500 for sockeye and 29,750 for coho.

Season Summary

The Bering River District generally opens the second or third week of June. In 1998, the first period was Thursday, June 11 (Appendix B.21). The first aerial survey of the area occurred on June 15, an estimated 4,700 sockeye were observed in Bering River and Bering Lake (Appendix B.22). The anticipated count for the week ending June 20 was 8,100 sockeye. The 24-hour period on June 11 harvested 5,185 sockeye, which was within the expected range. The second period on June 15 for 24-hours harvested 2,292 sockeye, far less than expected.

Typically, catch rates increase during the first two weeks of the fishery and this reduced harvest was a concern. An aerial survey on June 18 observed 5,600 sockeye. The anticipated count was 8,100 fish. Based on catch and escapement information, the Bering River sockeye run appeared to be somewhat weak. A third fishing period occurred on June 18 and five fishers harvested only 571 sockeye salmon. This period would generally occur during the peak of the return. To have the harvest drop at this point indicated the return would be below average. Historically, 65% of the Bering River District harvest has occurred by June 21. To continue assessing run strength, a fourth period was scheduled on June 22 which harvested only 279 sockeye. The next survey June 22 saw poor survey conditions and no estimate was possible. With only catch information at hand, the Bering River District was closed until further notice on June 24. The Bering River District remained closed until it opened for the harvest of coho on August 17. The escapement, based on systems surveyed, was 15% below the objective in 1998. Based on both catch and escapement, the 1998 return was not strong enough to support any commercial harvest.

Coho Salmon

The coho salmon fishery is managed concurrently with the coho fishery in the Copper River District. Coho salmon management typically begins in early August. The first commercial fishing period for the Bering River District occurred on August 17. The harvest from the August 17 fishing period was 3,979 coho. The projected harvest for the week ending August 22 was 10,600 (Appendix B.23). A second 24-hour period on August 20 harvested 8,300 coho salmon for a cumulative harvest for the week of 12,284 fish. This was slightly above the projected harvest of 9,566 coho salmon. However, in consideration of the low harvest seen in the Copper River District, the Bering River District did not open during the week

of August 30. Even if the salmon return is healthy, the Bering River District will not be opened when the Copper River District is closed for conservation purposes. Closure of the Bering River District follows the recommendations made to the SHTF in 1994. The recommendations, from both CDFU and CAMA, were that if escapement into the Copper River Delta systems is weak and Bering River/Controller Bay systems demonstrate surpluses, the Bering River District should not be opened by itself. Based on an average harvest for the week ending August 22, it was deemed that the Bering River/Controller Bay systems were not indicating a large return and couldn't support a commercial fishery. Escapement into the Bering River/Controller Bay systems was somewhat stronger than in the Copper River Delta and the observed aerial index was above the anticipated index (Appendix B.24).

Coghill District (Prior To July 21)

Preseason Outlook and Harvest Strategy

The management strategy prior to July 21 (gillnet only fishery) is concerned primarily with the return of sockeye salmon to Coghill Lake and the return of chum salmon to the Wally Noerenberg Hatchery (WNH). Coghill sockeye are managed for an escapement goal of 25,000, while hatchery chum are managed to satisfy the allocation between the common property fishery and Prince William Sound Aquaculture Corporation's (PWSAC) corporate escapement.

The forecast for the 1998 Coghill Lake sockeye salmon return was 57,400 fish of natural stock origin. In addition, PWSAC released pre-smolt into the lake in 1994 and 1995 which were expected to add some additional fish to the return. There was no formal forecast completed for this component of the Coghill Lake return due to a lack of information on pre-smolt to adult survival for Coghill Lake sockeye salmon.

The Noerenberg Hatchery expected a return of 810,000 early chum salmon. PWSAC adopted a revenue goal based cost recovery plan for 1998 instead of harvesting a fixed percentage of the enhanced return. The revenue goal was $2.35 million from non-pink species with roughly $1.4 million coming from Noerenberg chum salmon and $0.9 million from Main Bay sockeye salmon.

The total harvest for both the common property and the corporate catch of chum salmon was 1,015,917 fish which was 24% above the preseason forecast. The common property harvest of early chum salmon was 368,917 fish (Appendix C.1). PWSAC harvested 647,000 chum salmon for sales and the broodstock goal of 150,000 fish was achieved. The total commercial harvest of sockeye salmon in the district was 61,165 fish. Escapement of sockeye salmon into Coghill Lake was 28,923 fish, exceeding the goal by nearly 4,000 fish.

Season Summary

For the Coghill District, the management strategy agreed upon by the SHTF called for opening the Esther Subdistrict for a common property harvest when PWSAC reached a cumulative harvest of 20,000 chum salmon. This harvest level is typically achieved around June 12. In 1998, the Special Harvest Area (SHA) for PWSAC was expanded to include all waters inside of a line 0.5 miles seaward from Hodgkins Point to Esther Light. The 1998 strategy for cost recovery harvesting was similar to 1997's by being aggressive on the early portion of the return and using two seine boats for harvesting. PWSAC began its cost recovery harvesting on May 28. Expectations were for a large component of 6-year old fish arriving

early. However, the 6-year old component was weaker than expected and by June 5 PWSAC had harvested only 6,365 chums. The projected harvest by this date was 25,330 fish. By June 9, PWSAC had harvested nearly 20,700 chum salmon worth $70,000, or 3% of the non-pink revenue goal. Having reached the agreed upon harvest level of 20,000 cost recovery salmon, the first commercial fishery in the Esther Subdistrict was allowed to occur on June 15. The waters of the Esther Subdistrict excluding the waters of the SHA and THA opened for 24-hours. The SHA and THA remained closed to allow PWSAC to provide fish for cost recovery following the commercial period. To improve the quality of the 1998 chum harvest, the waters of Coghill District south of a line at 61° 00.00' N. latitude also opened on June 15. This allowed the fleet to harvest the chums that typically mill in Esther Passage and around Esther Island prior to moving into the hatchery terminal area.

By the morning of June 15, PWSAC had collected approximately 175,000 chum salmon worth nearly $650,000. This amount represented approximately 29% of the revenue goal for non-pinks. The commercial fishery harvested approximately 115,900 chum salmon during the June 15 fishing period (Appendix C.1). Through June 16, the cumulative harvest for both PWSAC and the commercial drift gillnet fleet was approximately 360,000 chum salmon versus an anticipated harvest of 220,000 fish. Based on the catch, the actual chum return was expected to exceed preseason expectations. Typically, run entry into the hatchery terminal area would begin to slow down following a commercial fishery. With PWSAC having achieved only 32% of their revenue goal, a reduction in fishing time was necessary and the June 19 commercial fishery was reduced to 12-hours. The harvest from the 12-hour period netted nearly 53,500 chum salmon. By June 19, PWSAC had harvested 215,000 fish for sales and 56,000 fish for broodstock. The anticipated corporate escapement through June 19 was 196,000 chum salmon. Sales harvesting dropped dramatically with no fish being harvested on June 18 or 19. With daily corporate harvesting falling behind the anticipated harvest level, the next commercial fishing period was a 12-hour opening with the same boundaries as those in place for the June 19 fishery.

The Coghill weir was in place by the evening of June 5 (Appendix C.3 & C.4). However, due to heavy rains the weir was removed from the river on June 8 and remained out of the water until June 15. During that period of time, no sockeye were observed in the river. The first sockeye was passed on June 17 and by June 19 the count had risen to ten sockeye salmon past the weir. The projected escapement past Coghill weir through June 19 was 761 sockeye. The cumulative harvest of sockeye in the commercial fishery through June 19 was 1,615 sockeye salmon This level of sockeye salmon harvest was well within the range of harvests that have produced decent returns in previous years.

By June 23, PWSAC 's revenue from chum salmon had reached $1.0 million, or 43% of the non-pink revenue goal. The projected mid-point of the Noerenberg chum return was June 26. The cumulative chum harvest at Noerenberg Hatchery through June 23 was 513,400. Based on current harvest to date and the historic run curve, an additional harvest of 725,000 chums was projected. However, with the 6-year old component weaker than projected and the strength of the 4-year old component unknown at this time, a cautious management approach was deemed necessary.

The next commercial fishery occurred on June 25. The announced opening was a 24-hour period in waters of Coghill District south of 61°00.00' N. latitude, with only 12-hours of time allowed in waters of the Esther Subdistrict. The Noerenberg Hatchery SHA and THA remained closed. The reduced time in the Esther Subdistrict was to provide additional fish for PWSAC's sales harvest. The harvest for the June 25 period was below expectations with 25,180 chum salmon being harvested. PWSAC harvested only 7,000 chums for sales between June 24 and June 27. The strategy of reducing time in the Esther

Subdistrict was continued for the June 29 fishing period. Following the June 29 commercial opening, it was apparent the chum return was not going to meet earlier inseason expectation. Both the commercial harvest and PWSAC's daily harvest were remaining below expectations. To provide additional fish to PWSAC, further restrictions were necessary. Escapement of sockeye salmon into Coghill Lake was less than anticipated with only 816 fish, versus a projected escapement of 8,000 fish, past the weir by July 3. However, a skiff survey on June 30 observed over 1,000 sockeye milling in several pools below the weir. With a confirmed buildup of sockeye salmon downriver, it was felt that the escapement goal of 25,000 sockeye salmon would be achieved and that no drastic restrictions to the commercial fishery would be necessary. However, to reduce the harvest of chum salmon by the commercial fishery, the waters of the Esther Subdistrict and the waters of the THA and SHA were closed until further notice. The waters outside of the Esther Subdistrict south of a line at 61° 00.00' N. latitude were opened for two 24-hour periods per week through Friday, July 10.

By July 10, 5,500 sockeye salmon had passed the Coghill weir; the projected escapement was 13,150 sockeye. The commercial harvest through July 10 was 47,841 sockeye. The sockeye salmon harvest through July 10 was slightly less than expected and the escapement was only 42% of expected level. The high tide series through early July produced only moderate harvest rates. With a marginal sockeye salmon harvest during the peak tide series in early July and an additional 20,000 sockeye needed for escapement, a more conservative approach would be necessary to assure escapement into Coghill Lake. The Coghill District remained closed until a significant increase in escapement occurred at Coghill Lake.

Through July 21, 16,000 sockeye salmon had passed the Coghill weir. The anticipated escapement was 21,200 fish. Coghill weir personnel estimated 2,000 sockeye salmon were in the river immediately below the weir with an additional 3,000 fish holding in pools further downriver. With an estimated 21,000 sockeye salmon having already escaped the commercial fishery, it was apparent the goal of 25,000 fish would be met. Therefore, the general waters of the Coghill District, excluding the Esther Subdistrict, were opened for a 24-hour period on Thursday, July 23. With PWSAC at only 86% of their non-pink revenue goal, the Esther Subdistrict remained closed. The harvest from Thursday's 24-hour period was 4,700 sockeye salmon, 22,300 chum and 80,000 pink salmon. Seine gear becomes a legal gear type in the Coghill District on July 21. A total of 78 gillnet and 25 purse seine permits fished the 24-hour period.

PWSAC expressed confidence that by Monday, July 27 they would attain their non-pink revenue goal. On Friday, July 24, PWSAC's non-pink revenue stood at $2.2 million. Escapement into Coghill Lake had reached 22,000 sockeye salmon with an additional 2,000 fish estimated to be below the weir. With sufficient sockeye salmon escapement into Coghill Lake assured and PWSAC's revenue goal for non-pink salmon nearly attained, the next commercial fishery was scheduled for Monday, July 27 and included all waters of the Coghill District, including the THA and SHA to a line of buoys near the barrier seine.

The Coghill River weir was dismantled on August 5 after 28,963 sockeye had passed the weir (Appendix C.5 & C.6). A total of 317 drift gillnet and 71 purse seine permit holders fished at least once in the Coghill District, harvesting a total of 61,165 sockeye and 368,917 chum salmon. PWSAC harvested 476,241 chum salmon worth $1.4 million and met their broodstock requirement of 150,000 fish. Based on CWT recoveries, approximately 2,000 of the 28,963 sockeye salmon that passed the weir were of hatchery origin. The total wild stock sockeye salmon return to Coghill Lake, including both the catch and the escapement, was estimated to be 75,200 fish.

Unakwik District

Season Summary

The 1998 Unakwik District harvest was 13,651 sockeye salmon with incidental harvests of chum and pink salmon. The sockeye salmon harvest exceeded the 10-year average harvest of 6,500. The Unakwik District opened June 22 on a schedule of two 24-hour periods per week, primarily targeting the sockeye salmon return to Miners Lake. No changes were made to the fishing schedule until July 31 when the district closed until further notice. The peak aerial survey estimate for Miners Lake was 1,250 sockeye. The district remained closed for the duration of the 1998 season following the July 30 period (Appendix C.9. and C.10.).

Eshamy District

Preseason Outlook and Harvest Strategy

The 1998 forecast of Main Bay Hatchery's sockeye salmon was 187,000 fish. This total was composed of 5,000 fish of Eyak stock origin, 153,000 fish from the Coghill stock and 29,000 fish of Eshamy stock origin. The Eshamy wild stock return was forecast to be 64,000 sockeye salmon, 35,000 of which were needed for escapement and 29,000 would be available for a common property harvest.

PWSAC required $900,000 from their Main Bay production to achieve their $2.3 million non-pink revenue goal. With a relatively weak return projected to Main Bay Hatchery, it was unlikely that a general Eshamy District common property opening would occur in 1998. In addition, based on the low forecast of wild stock sockeye salmon returning to Eshamy Lake, compounded by the fact that there would be no Eshamy weir to enumerate escapement, it was unlikely that the department would allow a directed fishery on the wild stock Eshamy Lake return.

By seasons end, the common property harvest of sockeye salmon from all stocks was 123,535 fish. (Appendix D.1). On average, PWSAC ended up receiving better than $1.00/lb. and were able to meet their $900,000 revenue goal from Main Bay's return. The hatchery broodstock goal for Coghill sockeye was achieved. The Eyak and Eshamy stocks have been discontinued at Main Bay Hatchery and all Eyak and Eshamy stock returns were harvested for sales.

Following the loss of Exxon Valdez oil spill funding, the Eshamy weir has been funded by ADF&G test fish revenues. During the SHTF in March, the department announced that the Eshamy weir would not operate unless new funds from a test fishery were secured. The department suggested that $28,000 in revenue for the Eshamy weir project could come from a bid process involving the harvest of sockeye salmon in the Copper River District. Lengthy discussion in the SHTF followed. Representatives to the SHTF decided that no test fish revenues should be generated from any of the Area E salmon fisheries. With funds not forthcoming, Eshamy weir would not operate during the 1998 season.

Season Summary

The first sockeye salmon to return to the Main Bay Hatchery are the Eyak Lake stock. Cost recovery on the Eyak stock began on June 8 with a harvest of only 25 fish. The projected harvest through June 8 was 4,200 fish. The next harvest occurred on June 10 with 591 sockeye salmon being captured for sales.

Cost recovery from the Coghill stock return began on June 21 with 7,672 sockeye salmon being harvested. The projected cumulative harvest was 4,350 fish. The two seine boats being used to harvest PWSAC's Main Bay Hatchery return were also responsible for harvesting PWSAC's chum salmon at Noerenberg Hatchery. In general, hatchery personnel at Main Bay monitored sockeye salmon abundance in waters nearest the hatchery each day. As necessary, the cost recovery boats would travel from Noerenberg Hatchery every two or three days to monitor sockeye salmon abundance throughout Main Bay and to conduct cost recovery harvesting. By July 3, PWSAC had harvested nearly 20,000 sockeye. The projected harvest by that date was 51,300. With the actual harvest being less than half that projected, PWSAC anticipated they would require the entire return to meet their revenue goal. Run entry and cost recovery harvesting continued to be far less than expected with a total of 58,000 fish harvested by July 20. The anticipated sockeye salmon harvest through July 20 was approximately 140,000. An unexpected push of sockeye into the SHA occurred on July 22 and the following morning PWSAC harvested 36,000 fish. Following this harvest, PWSAC anticipated that they would reach their cost revenue goal for non-pinks by July 27.

Prior to the start of the salmon season, the department announced that due to the likelihood of there being no commercial fishery in the Eshamy District in 1998, the department would provide a five-day advance notice should there be a possibility of an opening in the Eshamy District. With PWSAC having achieved their cost recovery goal and not harvesting the entire sockeye salmon return in doing so, the department announced that waters of the Main Bay Subdistrict would open to commercial fishing on Thursday, July 30 for 36-hours (Appendix D.2). The alternating gear zone (AGZ) would be open to drift gillnet gear for the first period. Based on PWSAC's sales over the previous several days, it was apparent that quality would be lower than desirable during the commercial fishery as the percentage of grade-3 fish had increased from 11% on July 16 to nearly 60% by July 25.

The Main Bay Subdistrict was opened for two 36-hour periods per week until September 26 when it closed for the season due to lack of participation. It is unknown whether Eshamy Lake met its escapement objectives. There was no directed fishery on Eshamy wild stocks and only the Main Bay Subdistrict was open to commercial fishing. Based on the preseason forecast, it is expected that the escapement objectives for Eshamy Lake were met for 1998. The final common property harvest of sockeye was 123,535 fish with the drift fleet harvesting 80% of this total.

General Purse Seine Districts

Preseason Outlook and Harvest Strategy

The general purse seine districts include the Eastern, Northern, Coghill, Northwestern, Southwestern, Montague and Southeastern Districts. The Prince William Sound Management and Salmon Enhancement Allocation Plan (5 AAC 24.370) closes the Southwestern District prior to July 18. The plan also closes the Coghill District to purse seine gear prior to July 21. Beginning July 21, both purse seine and drift gillnet gear are allowed in the Coghill District. Seine gear is allowed in the district as long as the harvestable surplus is predominantly pink salmon by number. Fishing periods in all districts are established by emergency order.

The general purse seine districts are managed to achieve wild pink and chum salmon escapement goals by

district, and allow for the orderly harvest of surplus wild and hatchery stocks. Escapement of pink and chum salmon is tracked through the season by weekly aerial surveys of 206 index streams. Management to achieve hatchery corporate escapement goals is accomplished by opening and closing subdistricts near the hatcheries. Subdistrict openings are also utilized to target the fleet on hatchery stocks when wild salmon escapement is weak.

VFDA's Solomon Gulch Hatchery has a stock of pink salmon that peaks in early July and a run of coho salmon that begins in August. All of VFDA's enhanced production returns to the Solomon Gulch Hatchery in Port Valdez with the exception of a small run of coho salmon that returns to Boulder Bay near the village of Tatitlek.

PWSAC produced pink salmon return to the Cannery Creek, Noerenberg and A.F. Koernig Hatcheries. The returns to PWSAC's three pink salmon hatcheries peak in mid-August. A moderate run of coho salmon at Noerenberg Hatchery is incidental to the late pink salmon fishery there. The outlook for the general purse seine fishery in 1998 was for a total return of 26.0 million pink salmon composed of 20.1 million hatchery (63% PWSAC, 37% VFDA) and 5.9 million wild stock pink salmon (Appendix A.10). Assuming a price of $0.15/lb. and a 3.5 lb. average fish weight, the forecast estimated that as many as 12.3 million fish could be needed to satisfy the combined corporate escapement needs of VFDA and PWSAC. An additional 1.4 million pink salmon would be needed to meet wild stock escapement goals leaving an estimated 11 million pinks for common property harvesting. Better than assumed average weights or prices, or changes to the assumed corporate revenue goals will affect the split between a common property harvest and corporate escapement.

The wild stock chum salmon forecast called for a total return of 230,000 fish with almost all of these being needed to satisfy the escapement goal of 225,000 fish. The forecast for enhanced chum salmon in seine districts was 60,000 fish returning to Solomon Gulch Hatchery and 300,000 fish returning to a remote release site in the Montague District.

When the PWS Salmon Harvest Task Force met prior to the fishing season, seine representatives on the task force reviewed past recommendations for the seine fishery. Of primary concern to the seine fleet has been the department's management of late timed enhanced pink salmon returns. The department outlined its anticipated management for both early and late timed pink salmon to representatives to the SHTF.

VFDA's 1998 Annual Management Plan for Solomon Gulch Hatchery called for their pink salmon return to be managed to meet a $2.5 million revenue goal and a minimum broodstock goal of 323,000 fish. Fish determined to be surplus to the corporation's needs would be made available for common property harvesting. Peter Pan Seafoods was again contracted to be the sole processor for VFDA's cost recovery pink salmon with VFDA receiving approximately $0.21/lb. for their fish. Peter Pan Seafoods in Valdez would be capable of processing an estimated 800,000 pounds or more per day. Considering the $2.5 million revenue goal and Peter Pan Seafoods daily processing capacity, achieving VFDA's revenue goal would require an estimated 15 to 17 days of cost recovery harvesting and processing. The management strategy discussed at the SHTF was to allow VFDA to achieve approximately 33% of their revenue goal before targeting their return with common property openings. Allowing VFDA to front end load their corporate escapement would provide information on the strength of their return through the monitoring of the daily change in sex ratios and in the abundance of fish entering Port Valdez.

With the parent year escapement goals having been met for pink salmon in the Eastern District, the

department again agreed to open a majority of the district during seine periods targeting the pink salmon return to Solomon Gulch Hatchery. This strategy would help to relieve congestion in the Valdez Narrows Subdistrict where a majority of the VFDA return has traditionally been harvested. Should Eastern District escapements fall short of weekly goals, closures would occur as needed to minimize wild stock interceptions. Should the Solomon Gulch Hatchery return be weaker than forecast, the district would be managed based upon the strength of the wild stock escapements.

As stated previously, a primary concern to the seine fleet has been the department's management strategy for the Southwestern District during the late timed pink salmon returns. With PWSAC's significant pink salmon cost recovery requirements and the recent trend in weak wild stock escapements in western PWS, the department's approach to management of the Southwestern District has been conservative. By regulation, the Southwestern District can open on July 18. Coded wire tagging and otolith data have shown that wild stocks tend to be more prevalent in this area throughout most of July. The PWSAC pink salmon return becomes predominant in western PWS beginning in late July or early August. The department explained that its preseason management strategy was to monitor the daily trend in the percentage of wild and hatchery stocks entering the Sound. Beginning in late July the department would collect pink salmon otoliths from cape areas, either through the use of a test fishery or with the R/V Montague. Once the enhanced component of the late pink salmon return began to predominate the return, directed commercial openings would occur at a level that would allow PWSAC to achieve their corporate escapement. Open areas would depend upon the strength of wild stock escapements in western PWS.

PWSAC stated that its corporate harvesting would occur initially at all three hatchery locations. Should inseason trends indicate greater efficiency could be achieved by concentrating their corporate harvesting at one or two locations, PWSAC requested flexibility in how their returns would be managed to achieve that efficiency. Based on an anticipated increase in the average price to be paid for pink salmon, seine effort was expected to be higher than in 1997. A total of 114 seine permits showed some activity during the 1997 season and the peak seine effort was 92 permits fishing during the late pink salmon return.

According to PWSAC's annual management plans, the corporate escapement goal for pink salmon was based on broodstock needs of approximately 866,000 fish and a revenue goal of $3.6 million. The department would collectively manage the pink salmon returns to Noerenberg, Cannery Creek and AFK Hatcheries to achieve the goal. Fish estimated to be surplus to the corporations needs would be made available for a common property harvest.

Season Summary

The 1998 seine season began on June 1 with a schedule of openings in the Port Chalmers Subdistrict targeting the enhanced return of remote released chum salmon (Appendix E.1). This was the second season that a harvestable surplus of enhanced chum salmon would be returning to the Port Chalmers remote release site. A schedule of three periods per week allowed for 7-day per week fishing in the area. A total of 202,632 chum salmon were harvested in the Montague District in 1998. The peak harvest occurred over the 60-hour period from June 10 to June 12 when 21,765 chum were harvested by 13 seiners. Of the 202,632 chums harvested in 1998, 119,000 were caught prior to June 27. In contrast, a majority of the 180,000 chum caught in 1997 were caught between June 25 and July 11. The earlier peak in 1998 was a reflection of the strength of the older age classes in the return.

Aerial surveys to assess early pink and chum salmon escapements in the Eastern and Northern Districts

began in mid-June. Surveys started in all other seine districts in July. Positive wild stock escapement trends were evident in the Southeastern, Eastern and Northern Districts by early July. This early wild stock trend was in contrast to the weakness noted in the enhanced pink salmon return to Solomon Gulch Hatchery. As a result, initial Eastern and Northern District openings were in areas designed to primarily target wild stocks.

Escapement goals in the Eastern, Northern and Southeastern, Southwestern and Montague Districts were met or exceeded in 1998 (Appendix E.4-E.8). In other districts, wild stock escapement trends were also positive; however, poor weather during late August and early September prevented consistent weekly aerial surveys from being flown. Peak escapement counts are anticipated during this period and the loss of surveys tended to underestimate the actual wild stock escapement in the aerial survey database. The most notable area where wild pink salmon escapement trends showed weakness was along the western shore of Port Wells. Based on the aerial survey database, the escapement goal was not achieved for the Coghill District. However, the Coghill River did experience a sizable return of pinks in 1998. The district also sustained the largest harvest of wild pink salmon since the mid-1980's.

With the financial backing and assistance of PWSAC and VFDA, and with help from Area E permit holders, otolith samples were again collected at selected western PWS streams. From these collections, straying hatchery pink salmon were again noted in the escapements of many streams in western PWS. The department hopes to both continue and to expand the otolith collections from PWS streams to examine the issue of straying pink salmon. The department also hopes to broaden the otolith recovery project to better support investigations of hatchery and wild stock interactions in Prince William Sound.

Seiners are able to successfully target wild chums in the Eastern, Northern, and Southeastern Districts, and enhanced chums in the Montague and Eastern Districts. Based upon the aerial survey database, wild stock chum salmon escapements appeared to fall short of individual district escapement goals (Appendix E.4, E.9-12). However, the loss of surveys due to poor weather and the difficulty of correctly identifying and accurately counting chum salmon in the face of high pink salmon escapements may have underestimated the wild chum salmon escapement. In general, it is believed that the Eastern, Northern and Southeastern Districts met or exceeded their respective goals while other districts experienced moderate escapement shortfalls.

VFDA began their corporate escapement harvesting on June 20 at the Solomon Gulch Hatchery using nine seiners in their cost recovery fleet. As previously stated, the 1998 pink salmon revenue goal for VFDA was $2.5 million. Based upon their sales contract with Peter Pan Seafoods, VFDA required approximately 12 million pounds of pink salmon to meet their revenue goal. Initial harvests were disappointing and the return consistently tracked below the anticipated run entry curve. Daily sex ratio information indicated the return was not delayed and the two indicators quickly indicated that the return would come in well below the forecasted 7.2 million fish. The average size of pink salmon being harvested was approximately 3.8 pounds. By July 1, VFDA had attained only 8% percent of their revenue goal, in contrast to the 33% they had attained by this date in 1997. With the apparent weakness in their return, VFDA was permitted to operate their cost recovery fleet throughout the Valdez Narrows Subdistrict. Fishing at Entrance Point provided much more immediate feedback on the overall abundance of pink salmon entering Port Valdez than could be obtained by limiting their sales harvesting to the eastern half of the port. In addition, with the advantage of having otolith marked fish, any significant interception of wild stocks by the sales harvest fleet would be quickly evident and appropriate management action could be taken. The percentage of female pinks in the sales harvest at the end of June was roughly 16%. Although slightly less than the

anticipated female percentage of 20%, the return was still thought to be weaker than forecast, especially with the low harvest success experienced by seiners fishing in Valdez Narrows.

Despite the apparently low return to Solomon Gulch Hatchery, aerial surveys were detecting a steady increase in the volume of wild stocks in the Eastern District. The first seine fishery in the Southeastern and Eastern Districts was announced for July 8. The Eastern District opening included only those waters south of the latitude of Black Point. Regulations contained in the Solomon Gulch Salmon Hatchery Management plan provide that the department may manage waters of Valdez Arm south to Rocky Point to assist in the achievement VFDA's corporate escapement. To provide additional protection to wild stocks destined for Galena Bay and Jack Bay, the department elected to confine the fishery to waters south of Black Point. This boundary provided some protection to the enhanced pink salmon returning to Solomon Gulch Hatchery. With the imposed boundary, a majority of the seine effort concentrated at Black Point, the closest available fishing location to Solomon Gulch Hatchery. The harvest for the first opening was 126,210 pink salmon, 8,643 chum salmon and 1,303 sockeye salmon from the Eastern District. Only 317 pinks were reportedly harvested in the Southeastern District. Despite the area restrictions, otolith data indicated that approximately 59% of the pink salmon harvested were enhanced fish destined for Solomon Gulch Hatchery.

The pink salmon return to Solomon Gulch Hatchery continued to perform well below expectations. Between July 1 and July 8, VFDA had accumulated 48% of their revenue goal. Historically the Solomon Gulch Hatchery return is 50% complete by this date. The female percentage stood at 39% versus an anticipated 37%, further indicating that the return was well below projections.

By July 12, the date of the second seine opening in the Eastern and Southeastern Districts and the first opening in the Northern District, VFDA had accumulated $1.85 million of their $2.5 million revenue goal. Wild stocks in these three districts appeared on track towards meeting weekly escapement goals. Although weak, the Solomon Gulch Hatchery pink salmon return appeared large enough to eventually satisfy the VFDA revenue goal and still provide some fish for common property harvesting. However, waters of Valdez Arm again remained closed for the seine opening on July 12 to minimize the common property harvest of enhanced pink salmon until VFDA was more assured of meeting their revenue goal. Waters east of Payday Point in the Northern District and south of Black Point in the Eastern District were opened for a 12-hour period. The entire Southeastern District was also opened. The resulting harvest from the Eastern District was 87,370 pinks by 41 seiners. An estimated 148,412 pinks were caught by 31 seiners in the Northern District. There was no reported harvest from the Southeastern District. Otolith information indicated that approximately 73% of the Northern District harvest and 57% of the Eastern District harvest were enhanced pink salmon destined for Solomon Gulch Hatchery.

Following the opening on July 12, VFDA continued their cost recovery harvesting and were within $300,000 of their revenue goal when the next seine fishery was announced for July 16. At this point, VFDA was almost assured of reaching their revenue goal and therefore the entire Eastern District, excluding only the east half of Port Valdez, was opened. The boundaries in the Northern District remained the same for this opening and the Southeastern District was again opened. An estimated 483,000 pinks were harvested in the Eastern District with Valdez Port and Arm attracting the greatest seine effort. The enhanced contribution of 91% is a reflection of where fishing effort was concentrated. An estimated 10,500 chum salmon were also harvested. The Northern District harvest was roughly 27,000 pinks and 2,300 chum salmon. The July 16 seine period in the Eastern District was the peak for both harvest and effort in the district with 91 permits showing activity. By July 16, the Solomon Gulch return is anticipated

to be 80% complete. The total harvest of Solomon Gulch pink salmon by that date stood at 3.56 million pinks, roughly half the anticipated harvest.

The first opening that included waters inside Port Valdez diminished the run entry into the Solomon Gulch Hatchery THA. To further assist VFDA in attaining their revenue goal, the boundary for the next opening on July 18 excluded waters of Port Valdez and waters of Valdez Arm north of Tongue Point. Strong wild stock escapement allowed the Northern District, excluding the Perry Island Subdistrict, to be opened for the July 18 seine opening. The Southeastern district again opened but again no harvest occurred. Expanding the boundary in the Northern District attracted additional seiners and 35 permits showed activity as compared to the 6 permits that fished in the district the previous period. An estimated 92,000 pinks were harvested in the Northern District. In the Eastern District, 60 seiners harvested 180,000 pinks on July 18. With Port Valdez closed and the Solomon Gulch Hatchery return well past its peak, the enhanced component of the harvest declined to 62% in the Eastern District and was only 28% in the Northern District. Small (2%) contributions from both Noerenberg and Cannery Creek Hatcheries were noted in the July 18 seine opening in the Northern District.

Following the July 18 seine opening, VFDA continued their cost recovery harvesting over the next four days and then elected to end seining effective July 22. By this date, they had accumulated $2.42 million of their $2.58 million revenue goal and estimated they would recoup some of the shortfall through egg sales. With VFDA's revenue harvesting complete and sufficient broodstock estimated to be holding in the hatchery THA, the next seine opening in the Eastern District again included the western half of Port Valdez. Galena Bay remained closed inside the yellow SHTF markers to improve wild pink and chum escapement into Duck River and Indian River.

The Northern District, excluding the Perry Island Subdistrict, and the Southeastern District again opened concurrently with the Eastern District on July 22. An estimated 64 seiners harvested approximately 208,000 pinks and 8,000 chum salmon in the Eastern District with a majority of the harvest occurring in Valdez Port and Arm. The enhanced component of the pink salmon catch on July 22 was 73%. In the Northern District, the harvest was approximately 117,500 pink salmon and 13,250 chum salmon. The combined contributions from Cannery Creek Hatchery and Noerenberg Hatchery to the Northern District Harvest increased significantly from the previous period's 4% to 46% on July 22. At that time, PWSAC was not prepared to begin cost recovery harvesting at Cannery Creek Hatchery and harvestable numbers of pink salmon were not present in the Cannery Creek SHA. The ongoing chum salmon cost recovery harvesting at Noerenberg Hatchery had begun to detect pink salmon in the hatchery SHA and the first sales of pink salmon occurred there on July 17.

Beginning with the July 22 seine period, the Eastern District was opened for 12-hours on an every other day schedule for the remainder of the seine season. Some area restrictions were used to ensure that wild stock escapement goals for Indian Creek and Duck River were met. Later in the season at the request of processors, closures inside Eastern District yellow SHTF markers were employed for quality considerations. In addition, the Port of Valdez remained closed during August to protect the coho return to Solomon Gulch Hatchery and to provide reasonable separation between the sport and commercial harvesters targeting this enhanced coho return. The closure boundary at the entrance to Port Valdez was moved northward to the latitude of Middle Rock light during August. This minor adjustment allowed seiners to more easily fish the popular Entrance Point set without drifting over the line. A total of 29,971 coho salmon were caught by seiners in the Eastern District in 1998. A 60-hour opening in Port Valdez following the Labor Day weekend resulted in a harvest of 11,469 coho by 21 seiners. Between September

3 and October 12, Solomon Gulch Hatchery sold 20,199 coho salmon that had entered their hatchery.

The Coghill District becomes a dual gear area on July 21 allowing seiners access to enhanced pink salmon returning to Noerenberg Hatchery and wild pink salmon returning to the district's streams. This season's sockeye salmon return to Coghill River was relatively strong and eventually met its spawning escapement goal on July 27. The strength of the wild sockeye salmon return allowed the district to be managed more aggressively, thereby allowing surplus reds to be harvested in a timely fashion. The Coghill District, excluding the Esther Subdistrict, was opened concurrently with the Copper River and the west half of Port Valdez on July 23. The Esther Subdistrict closure was in response to the ongoing PWSAC chum salmon corporate escapement needs. The Port Valdez opening was in response to VFDA having achieved their corporate escapement goal. In the Coghill district, 101,000 pink salmon were caught on July 23-24 with an estimated 93% determined to be of wild stock origin. The origin of the remaining 7% was split between Noerenberg, Cannery Creek and Solomon Gulch Hatcheries. Twenty-five seiners had fished in the Coghill District. In Port Valdez, an estimated 39 seiners landed 100,771 pink and 10,356 chum salmon.

PWSAC anticipated they would achieve their non-pink revenue goal by July 27 and a second dual-gear opening was announced for the Coghill District. The opening on the 27th included the entire Coghill District and the hatchery THA and SHA. Combined, the two 24-hour periods resulted in 10,364 sockeye salmon, 270,000 pink salmon and 48,000 chum salmon to be harvested by the two gear types. With the Esther Subdistrict open for the second dual-gear period on July 27-28, the composition of the pink salmon harvest shifted from being comprised mostly of wild stocks to being primarily enhanced pink salmon. An estimated 169,500 pinks were harvested on the 27th and 28th, of which 51% were from Noerenberg Hatchery and 3% were from Cannery Creek Hatchery.

By the last week of July, a schedule of every other day seine openings was occurring in the Eastern, Northern, and Southeastern Districts and otolith data indicated that wild stocks predominated the harvest in all fishing districts. PWSAC pink salmon had begun to be detected in the Northern and Coghill District harvests although there were no appreciable concentrations in hatchery terminal areas at that time. The department began altering fishing area boundaries in the Northern and Coghill Districts to continue allowing the harvest of surplus wild stocks while beginning to provide for PWSAC's corporate escapement.

PWSAC had begun corporate harvesting at all three of their pink salmon hatcheries by July 29 and by August 1, they had harvested approximately 397,000 pink salmon. Based upon preseason sales and size assumptions, meeting PWSAC's 1998 pink salmon revenue goal might require up to 6.39 million pink salmon, fully half of their forecasted return.

The July 31 opening included portions of the Eastern, Northern and Coghill Districts and the Southeastern District. The seine fleet had grown to 118 active permits and 74 of these fished in the Eastern District on July 31. The composition of the harvest of 203,700 pinks was 81% wild stock, 14% Solomon Gulch, 5% Cannery Creek and 1% Noerenberg Hatchery. The Northern District harvest of 80,500 was 74% wild stock with the rest split between Cannery Creek and Noerenberg Hatcheries. The Southeastern District harvest peaked on July 31 when 93,700 wild pinks were landed by 16 seiners. With the Esther Subdistrict again closed to provide for PWSAC's corporate escapement, the harvest of 37,400 pinks in Coghill District was comprised of 72% wild stocks; 12% from Noerenberg Hatchery and 6% from Cannery Creek Hatchery.

In late July, The R/V Montague began sampling otoliths from the cape areas of the Southwestern District. The department uses this information to monitor the ratio of wild and hatchery stocks entering the Sound. Otolith and CWT data have indicated that wild stocks are predominant from mid July to late July. As the late returns of both wild and hatchery fish increase overall, the PWSAC returns become predominant. On July 29, wild stocks still comprised 54% of the fish sampled in the Southwestern District. This percentage declined to 23% by August 4, the date of the first common property opening in the district. On August 9, the date of the peak wild stock harvest in the Southwestern District, the percentage of wild fish in the harvest was roughly 10% and 85,000 wild fish were harvested.

Prior to the first common property opening in the Southwestern District, the Eastern, Northern, Southeastern and Montague Districts opened for 12-hours on August 2. Regulatory closed waters in Port Chalmers were suspended after a significant buildup of pink salmon were noted during routine aerial surveys. The peak Montague District harvest of pink salmon occurred on August 2 when 245,000 pinks and 3,900 chum salmon were landed by 17 seiners. An estimated 174,000 of those pinks were determined to be of wild stock origin. Contributions from all three PWSAC pink salmon hatcheries rounded out the Montague District harvest.

By August 1, PWSAC had harvested 122,000 pink salmon at Cannery Creek Hatchery and 120,000 at Noerenberg Hatchery. To improve PWSAC's corporate escapement at these facilities, the Northern District opening on August 2 targeted the district's wild stocks with much of the western half of the district open only inside the yellow regulatory markers. An estimated 22 seiners landed 137,500 pinks and 2,500 chum salmon. Otolith data indicated that 42% of the pink salmon were wild fish, 43% were from Cannery Creek Hatchery, 14% were from Noerenberg Hatchery, and 1% were from Solomon Gulch Hatchery. Low numbers of pink salmon from Solomon Gulch Hatchery continued to appear in the catch until August 14. In the Eastern District, the peak wild stock harvest occurred on August 2 when 177,000 wild pink salmon, out of a total harvest of 188,800 pinks, were caught by 67 seiners.

The Point Elrington Subdistrict in the Southwestern District, along with most waters of the Eastern, Northern, Southeastern, and Montague Districts opened for 12-hours on August 4. The restricted opening in the Southwestern District was designed to collect otolith information from a limited commercial harvest at the cape areas. Otolith information along with the magnitude of the harvest would provide information needed to manage late pink returns. The openings in other areas were occurring where wild stock escapement goals were being met.

On August 4, 60 seiners harvested 325,500 pinks from the Point Elrington Subdistrict which were comprised of 23% wild stock, 31% AFK Hatchery, 18% Cannery Creek Hatchery, and 18% Noerenberg Hatchery. In the Eastern District, 26 seiners landed 132,00 pink and 3,700 chum salmon on August 4. Approximately 92% of the Eastern District pink salmon harvest was comprised of wild fish with small contributions from Cannery Creek and Solomon Gulch Hatcheries. In the Northern District, 13 seiners landed 85,000 pink salmon of which 26% were wild, 68% were from Cannery Creek Hatchery and 5% were Noerenberg Hatchery pink salmon. Out of a harvest of 95,000 pinks by 12 seiners in the Montague District, roughly 83,000 were wild fish with the remainder being from PWSAC hatcheries.

PWSAC continued their daily corporate harvesting and, by August 5, had harvested 1.3 million pink salmon at their three hatcheries. Their daily harvest rate reached 314,000 fish per day on August 5. A seine period was announced for August 6 which expanded the open waters in the Northern District. The

Point Elrington Subdistrict would again open along with most of the Eastern, Southeastern, Montague and Coghill Districts. The total common property purse seine harvest on August 6 was 1.1 million pink salmon. Combined with PWSAC's reported sales harvest of 408,000 pink salmon on August 6, daily processing capacity in the PWS area was determined to be at its upper limit. Some processors placed their boats on daily catch limits following the August 6 fishing period and by August 9 a majority of PWS seiners were placed on catch limits of 50,000 pounds per day or less. Due to the large harvest, PWSAC reported some difficulty in efficiently moving their sales fish following the August 6 harvest. To allow PWSAC the opportunity to advance their sales harvesting prior to aggressively fishing with the seine fleet, the next seine opening was announced for August 9, thus giving PWSAC two consecutive days of cost recovery harvesting.

By early August, the statewide harvest of pink salmon appeared to be strong. Kodiak's pink return was coming in higher than forecast and some PWS processors had begun processing Kodiak pinks in July to keep their plants operating at capacity. Once the PWS late pink returns were readily available for harvesting in August, processing capacity was limited. It appeared that between the now limited common property harvest and PWSAC's corporate sales harvesting schedule, the average daily removal of PWS pinks would be approximately 970,000 fish per day. At the peak of the return, harvesting at this rate was not able to keep pace with the daily run entry into hatchery terminal areas and surpluses of pink salmon began to form.

By August 9, PWSAC had obtained roughly 45% of their pink salmon revenue goal. Better than anticipated prices also allowed PWSAC to reduce the number of pink salmon that would be needed to achieve their goal by approximately 900,000 fish. The opening that day included the Point Elrington Subdistrict and the Port San Juan Subdistrict including the AFK Hatchery THA and SHA. The Esther Subdistrict excluding the THA and SHA was open along with a majority of the Northern District outside the Perry Island Subdistrict. The Eastern District also reopened; however, the Southeastern District had closed for the season following the August 6 fishing period.

With daily limits in place and the PWS pink return approaching its peak, the department focused a majority of the harvesting opportunity at hatchery subdistricts and terminal areas. Consistent removals from these areas would help to maintain quality for the common property harvest as well as the sales harvest. To date, the only reports of low quality pink salmon had come from the Eastern District wild stock harvest where early timed pinks had been on the grounds since late June. Closures inside SHTF markers in the Eastern District were instituted on August 9 to address wild stock quality concerns. The quality of the later timed PWSAC pinks remained highly acceptable. The August 9 harvest was 834,000 pinks from the Southwestern District, 439,000 pinks from the Coghill District, 394,000 pinks from the Northern District, and 15,000 pinks from the Eastern District. Pink salmon were abundant in hatchery subdistricts and most seiners could easily harvest their daily catch limits. When daily limits were exceeded by individual seine boats, the subsequent delivery at tenders led to apparent confusion with respect to proper catch reporting procedures. Poundage delivered over the limit was sometimes not reported or else it was loosely assigned to other seiners or to drift gillnet permit holders who were still below their own respective limits. Prior to the 1999 salmon season, registered processors and tender operators will be reminded of the regulations regarding the department's catch reporting requirements and procedures to follow when daily catch limits are being imposed by processors.

Seine harvests first exceeded one million pinks per 12-hour fishing period on August 6 and continued to exceed the million fish level through the August 19 fishing period. The August 9 harvest of 1.68 million

pink salmon was the peak common property seine harvest for the season and the catch included 174,000 wild fish. In general, most of the pink salmon seine harvests for the remainder of the season had wild stock contributions of 10% or less. Between August 9 and August 19, when PWSAC achieved their pink salmon revenue goal, a schedule of every other day common property openings allowed daily cost recovery harvesting to make significant, orderly progress. On August 11, PWSAC consolidated their cost recovery efforts at Noerenberg and AFK Hatcheries which allowed common property fishing within the Cannery Creek Hatchery THA. On August 13, the Perry Island Subdistrict was included in Northern District openings and on August 15, a majority of the Southwestern District began opening regularly.

The mid-August seine harvest was fairly well distributed, with the August 13th purse seine harvest of 1.4 million pink salmon seeing 580,000 caught in the Northern District, 274,000 being caught in the Coghill District and 531,000 caught in the Southwestern District. On August 17, seine effort peaked with 141 permits showing activity. Peter Pan Seafoods announced that the 17th would be their last day of buying pink salmon in PWS citing a lack of tin at their Valdez plant. After North Pacific Processors followed suit on August 19, the size of the active seine fleet was effectively reduced to 80 permits.

With the high statewide pink salmon harvest, processor interest in the PWS return was waning and quality concerns were increasing as the third week of August drew to a close. With the late timed pink salmon return past its peak, a majority of the harvesting was shifting to the Southwestern District. The purse seine harvest of 862,000 pink salmon on August 21 saw 614,000 of these fish come from the Southwestern District. Fifty-four seiners fished there in contrast to the single seine permit fishing in the Coghill district and the 25 seiners fishing in the Northern District. The following week saw almost all of the remaining PWS processors stop buying PWS pinks. The seine fleet shrank to a core fleet of less than a dozen boats that still had limited markets for darker pinks and roe. Between August 30 and September 22, approximately 1.2 million pink salmon were landed, mostly from terminal areas at Noerenberg and Cannery Creek Hatcheries. Most fish still being harvested were primarily for roe salvage with the carcasses being either processed, converted to fertilizer, or donated to acceptable outlets. This late season harvesting helped to significantly reduce the surpluses at these two facilities. As many as one million pink salmon remained at AFK Hatchery in the Southwestern District and most of these fish ended up dying along the shores of Port San Juan. PWSAC did not harvest surplus pink salmon exclusively for roe sales, opting to sell roe only from unused broodstock during egg takes.

In summary, the seine season was marked by moderately strong wild stock returns. Wild stocks contributed an estimated 3.69 million pink salmon (18.8%) to the common property harvest of 19.86 million pinks. Hatchery returns showed a range of survivals with Solomon Gulch Hatchery pink salmon experiencing a weaker than forecast return and the PWSAC facilities all coming back stronger than forecast.

The total common property harvest for the Eastern District was 107,854 chum salmon, 29,971 coho salmon, 6,694 red salmon and 2.23 million pink salmon. An estimated 1.17 million pink salmon were wild stocks and 1.0 million were from Solomon Gulch Hatchery. The remaining pink salmon were from PWSAC hatcheries. VFDA harvested 3.43 million pink salmon, 28,666 chum salmon and 20,199 coho salmon for cost recovery and were able to achieve broodstock goals. The peak harvest in the district occurred on July 16 when 483,000 pinks were harvested. Based on otolith data, 91% of those fish were from Solomon Gulch Hatchery. The peak wild stock harvest in the district occurred on August 2 when 177,000 wild pink salmon were harvest out of a total harvest of 188,000 pinks.

In the Southeastern District, 350,081 pink salmon were harvested in 1998. The harvest was overwhelmingly comprised of wild stock fish throughout the entire season. The peak harvest period occurred on July 31 when 93,700 pinks were harvested by 16 seiners.

The total common property harvest for the Northern District was 5.04 million pink salmon of which an estimated 676,000 were wild stocks and 3.7 million were from Cannery Creek Hatchery. In harvesting towards their $3.6 million pink salmon revenue goal, PWSAC harvested 1.34 million pink salmon at Cannery Creek Hatchery. The peak harvest in the district occurred on August 17 when 627,502 pinks were harvested by 63 seiners. Based on otolith data, the peak wild stock harvests in the district occurred on July 22 and July 29 when roughly 79,000 wild pink salmon were caught on both days.

In the Coghill District, the total common property purse seine harvest was 2.85 million pink salmon and 21,600 chum salmon. An estimated 2.59 million of the pink salmon were enhanced pink salmon produced at Noerenberg Hatchery. PWSAC harvested 2.44 million pink salmon at Noerenberg Hatchery between July 17 and August 19. There were an estimated 339,000 wild pink salmon harvested in the Coghill District with the peak wild stock harvests occurring on July 23-24 and July 27-28.

The total common property harvest for the Southwestern District was 6,615 sockeye, 4,030 chum, 13,146 coho and 8.43 million pink salmon. PWSAC harvested 1.63 million cost recovery pinks at AFK Hatchery. Based on otolith data, an estimated 780,000 pink salmon caught in the district were estimated to be wild stock fish. Enhanced pink salmon contributions to the district's mixed stock harvest were 4.95 million pinks from AFK Hatchery, 1.69 million from Noerenberg Hatchery, and 997,000 from Cannery Creek Hatchery. The peak harvest occurred during the 36-hour period on August 22-23 when 1.24 million pinks were harvested. The peak wild stock harvest occurred on August 9 when 85,000 wild pinks, out of a total harvest of 834,000 fish, were taken from the Port San Juan and Point Elrington Subdistricts.

The department is currently working with fishing industry representatives to explore management options that can maximize utilization of the pink salmon resource while providing for corporate and wild stock escapement needs. After accounting for the wild stock escapement index and the unharvested post season surplus, 1998's total return estimate for pink salmon is approximately 34.1 million fish. Despite this being the fifth largest pink salmon harvest in PWS history, the significant unused surplus of pink salmon clearly indicates that changes and improvements are needed before the PWS area can successfully experience another pink salmon return of this magnitude. The necessity of limiting harvests to match processing capacity during the peak of the return points to a potentially serious shortage of processing capacity for the PWS seine fleet. In years with large harvests statewide, pink salmon harvests in other regions clearly can have an influence on the conduct of the pink salmon fishery in PWS. PWS pink salmon have sometimes been exported to Kodiak or Southeast for processing. With strong returns statewide, processors ended operations in PWS earlier than normal and exporting pink salmon was not an option in 1998.

In addition to recognizing the need for additional processing capacity in PWS, the department hopes to improve pink salmon utilization by broadening its ability to use otolith marks for improved forecasting and inseason management. With otolith marked fish, the risks to wild stocks associated with a harvest decision can be evaluated prior to a fishery being announced. Post fishery analysis can be used to further refine management. Stream escapements, commercial harvests, and migration routes can all be accurately characterized using otolith marks. As a management tool, otolith marks offer a great deal of useful information about wild and hatchery pink salmon interactions.

Reliably forecasting the magnitude of the PWS return can assist local managers, hatchery operators and the fishing industry in sufficiently preparing for the coming salmon season. The commercial harvest of 28.6 million pink salmon in 1998 exceeded the forecasted harvest by 5.3 million fish. Major processors cited a lack of tin as their reason for ceasing operations near the peak of the late pink return. Reliable statewide forecasts can help the entire industry identify and address if regional processing shortfalls are likely to occur. Traditional markets and outlets may be unwilling or unable to absorb consistent annual harvests of 100 million pink salmon from Alaska. Until this issue is addressed locally and statewide, post season surpluses comprised of late timed pink salmon are likely to result.

1998 PRINCE WILLIAM SOUND AND COPPER RIVER SUBSISTENCE AND PERSONAL USE FISHERIES

Subsistence and personal use harvests continue to be minor by comparison to the commercial salmon harvest in the Prince William Sound management area. The largest subsistence and personal use fisheries occur on the upper Copper River, upstream of the regulatory markers above Haley Creek to the Copper River's confluence with the Slana River. In Prince William Sound and the Copper and Bering River Districts, commercial fishermen may withhold a portion of their commercial catch for home use. During the BOF meeting in December of 1997, an agenda change request concerning the personal use fishery was adopted by the BOF. This change will be described in the personal use section. Since 1994, all chinook salmon in the Copper and Bering River Districts that are harvested, but not sold, in the commercial fishery (home use) must be reported on a fish ticket.

The area's only personal use fishery occurs on the upper Copper River in the Chitina Subdistrict. All remaining waters of the Prince William Sound Management area are closed to the personal use taking of finfish. Subsistence fishing permits are issued from the Cordova office for the Copper River Delta and designated waters of Prince William Sound.

Prince William Sound Area Subsistence and Home-Use Fisheries

Prince William Sound and Lower Copper River Fisheries

During the 1996 BOF meeting, several changes were made to the Copper River District subsistence fishery. These changes include the regulation that a permit holder must, immediately upon landing, clip both tips of the tail fin. Also, all salmon caught must be recorded on a form provided by the department immediately after landing the salmon. Finally, subsistence fishing is to be open seven days a week, from May 15 until two days before the first commercial fishing period in the Copper River District. Following the opening of the commercial fishery, subsistence harvesting is to be open only during commercial fishing periods until the commercial fishing season is closed. Following the commercial fishing season closure, subsistence harvesting is open seven days a week until September 30 when it closes by regulation.

In 1998, four subsistence permits were issued for Prince William Sound. Three permits did not fish and one permit was not returned. For the Copper River District, 245 permits were issued in 1998, down slightly from the number issued in 1997. In 1998, the Copper River District was opened to subsistence

fishing in early September because of the extended closure of the commercial fishery. Of the 230 permits returned, 144 permit holders fished and 86 permit holders did not fish. The reported catch was 295 chinook, 850 sockeye and 680 coho (Appendices G.1 and G.3).

The recording of take home or "home use" chinook salmon on fish tickets from the Copper and Bering River District's commercial salmon fisheries began in 1994. During 1994, 12 chinook salmon were recorded as taken for home use from the Bering River District and 751 were reportedly taken from the Copper River District. In 1995, a total of 11 chinook were reported taken from the Bering River District and 1,688 were reported taken from the Copper River District. In 1996, the total was 2,169 chinook salmon from the Copper River District. For 1997, 1,243 chinook salmon were reported taken for home use and 3 were taken in the Bering River District. A home use harvest of 1,418 chinook salmon was reported for the Copper and Bering River District for 1998.

Eastern and Southwestern Prince William Sound Fisheries

The Southwestern and Eastern subsistence area's permit program began in 1988. Residents of both Chenega Bay and Tatitlek are eligible for subsistence use permits in their respective areas. In 1991, a court ruling qualified all residents of Alaska for a subsistence permit in the Eastern or Southwestern areas. Permit holders are allowed to fish in these areas from May 15 until two days before the first commercial fishing period. Once the commercial fishing season is established, subsistence fishing may occur only during commercial fishing periods. Two days after the closure of the commercial fishery for the season, subsistence harvesting is open to seven day per week fishing until September 30 in the Southwestern area and until October 31 in the Eastern area.

Four permits were issued in the Southwestern area, primarily to residents of the village of Chenega. Only 3 permit holders reported having fished, reporting a total catch of 13 chinook, 114 sockeye, 65 pink, 119 chum and 20 coho. In the Eastern area, 11 permits were issued. Only two permits were returned, reporting a total harvest of 2 sockeye, 71 coho, 4 pink, and 28 chum salmon (Appendix G.4).

Upper Copper River Subsistence And Personal Use Fisheries

Subsistence Fishery

The projected magnitude of the 1998 Copper River salmon return was anticipated to provide sufficient fishing opportunity for the subsistence fish wheel and dip net fishery. During the 1996 BOF meeting, the subsistence guideline harvest level was set at a range of 60,000 to 75,000 salmon. That amount corresponded with the harvest range being experienced at the time. Regulations were passed regarding fish wheel ownership, permitted users, and the concept of a village fish wheel permit was accepted. The following new regulations also went into effect prior to the 1997 season: 1) The owner of the fish wheel shall register that fish wheel with the department. 2) The registration number, along with the owner's name and address, must be permanently affixed to the wheel when it is in the water. 3) The owner of the fish wheel is responsible for the fish wheel when it is in the water. 4) A permit holder may operate only one fish wheel at a time. 5) A fish wheel may be operated only by one permit holder at a time. 6) Only the permit holder and the authorized member of the household listed on the subsistence permit may take salmon. 7) A permit holder must record all salmon taken on the subsistence permit before the permit holder leaves the fishing site.

The BOF also created a subsistence permit that can be issued to a village council or other similar qualified organization whose members operate fish wheels for subsistence on the Copper River. The fish wheel will be operated on behalf of the members of the village or organization. These permits will be issued after departmental review and approval of a harvest assessment plan submitted by the village or organization. The harvest assessment plan must include the following: 1) Provisions for recording daily catches for each fish wheel. 2) Sample data collection forms. 3) Other information specified by the department. 4) Location of the fish wheel(s). 5) The full legal name of the individual responsible for the lawful operation of each fish wheel. The village permits must follow regulations pertaining to the Upper Copper River subsistence fishery plus the following provisions: 1) The permit will list all household members for whom the fish wheel is being operated. 2) The harvest will not exceed the combined seasonal limits and the permittee will notify the department when households are added to the list. Households listed on village permits are not permitted to apply for a separate household subsistence permit.

The subsistence fishery in the upper Copper River opened for seven day per week harvesting on June 1 and it was closed by regulation on September 30. A total of 272 dip net and 738 fish wheel permits were issued. The estimated total (reported and unreported) salmon harvest was 67,065.

Batzulnetas Subsistence Fishery

The Batzulnetas subsistence fishery began in 1985 when Katie John filed a civil suit in the United States Court (A85-698 Civil). The suit asked that the residents of Dot Lake and Mentasta be allowed to subsistence fish with fish wheels, dip nets, and spears in the closed waters of the Copper River and Tanada Creek which were traditional waters of the old Batzulnetas village site. In 1987, an interim subsistence fishery at Batzulnetas was provided for by Emergency Regulation (ER) to achieve settlement in the United States District Court. The ER established fishery boundaries near the mouth and within Tanada Creek near the historic village site of Batzulnetas. Fish wheels were allowed in the Copper River and spears in Tanada Creek. The assigned quota was 1,000 sockeye salmon with the open fishing periods being two days per week in June and 3.5 days per week in July and August. Eight permits were issued to individuals or family groups from Mentasta and Dot Lake and the fishery was conducted during July and early August. A total harvest of 22 sockeye salmon were reported in 1987. After reviewing the fishery prior to 1988, the BOF established seasons and eliminated the 1,000 fish quota. Instead, the board allowed a harvest of 30 salmon for a household with one individual, 60 salmon for a household of two, and 10 additional salmon for each additional household member. Upon request, additional fish would be permitted. In 1988, an emergency order opened the same waters as in 1987 for 48-hour per week harvesting from June 17 until the end of June, and for 84-hour per week harvesting for the months of July and August. No permits were issued and no salmon was reported harvested during the 1988 season.

In 1989, another civil suit was filed by John, Charles, and the Mentasta Village Council seeking an injunction against the State and requesting continuous fishing be allowed at Batzulnetas. The United States District Court of Alaska ruled in favor of John and ordered a continuous fishery with a quota of 1,000 sockeye salmon. No permits were issued and no reported harvest occurred. The fishery opened from 8:00 a.m. Friday, June 23 until 12:00 midnight September 1. In 1990, another injunction was filed to allow the use of gillnets along with continuous fishing. The U.S. District court ruled in favor of continuous fishing through September 1, or until 1,000 sockeye salmon were harvested, but denied the use of gillnets. No permits were issued and there was no reported harvest between 1990 and 1992. In

1993, one permit was issued and a reported harvest of 160 sockeye salmon occurred. The fishery was open for 84-hours per week from July 15 to September 1. In 1994, John et al filed an injunction on June 3 in the United States District Court of Alaska seeking the allowance of continuous fishing in the Batzulnetas area from June 25 through September 1. The court denied the injunction on June 22, 1994. The subsistence fishery opened for 48-hours per week in June and for 84-hours per week from July 1 to September 1. Four permits were issued in 1994 and 997 sockeye salmon were harvested. In 1995, four permits were issued. Only two permits fished resulting in a total harvest of 16 sockeye salmon. In 1996, no permits were issued and no harvest was reported. Of the three permits issued in 1997, only one household reported fishing, harvesting 176 sockeye salmon. In 1998 one permit was issued for a harvest of 386 sockeye salmon.

Personal Use Fishery

The personal use fishery occurs in the Chitina Subdistrict. Dipnets are the only legal gear and the season runs from June 1 to September 30 during periods established by emergency order. Several changes to the personal use fishery occurred during the 1996 BOF meeting in Cordova. The most significant change was an increase in the quota from 60,000 to 100,000 salmon. In addition, the BOF allocated 100% of the salmon in excess of the Miles Lake sonar goal. Prior to this change, the personal use fishery was allocated 25% of the excess salmon past the Miles Lake sonar site. The BOF developed an abundance based management plan which is designed to distribute the PU harvest throughout the season. Eliminated from the previous plan was an automatic increase in bag limits if a total of 45,000 salmon were not harvested after the fifth week of the fishery. The BOF also applied a "chinook insurance policy" to the personal use fishery by reducing the bag limit from five chinook salmon to four, thereby reducing the potential harvest of chinook salmon by 5%. To reduce the harvest in the sport fishery by 5%, the BOF imposed a Tuesday closure on guiding for chinook salmon. An agenda change request was submitted to the BOF during the summer of 1997 which asked for an increase in the personal use bag limit. During a December meeting, the BOF adopted a plan whereby during weeks when passage rates past the Miles Lake sonar counter exceed the anticipated passage by more than 50,000 salmon, an additional 10 fish would be allowed to permit holders which had reached their original quota.

The 1998 personal use fishery opened for 36-hours on June 6. Daily escapements past the Miles Lake sonar counter began exceeding the desired escapement by May 27 and supplemental permits were made available for harvesting some of this available surplus from June 15 to June 21. Surplus salmon are defined as salmon above the number needed to satisfy both the biological escapement and the harvest allocations in upriver fisheries. The fishery was reopened June 10 until the end of the season when the fishery closed on September 30. A total of 10,006 dip net permits were issued in 1998, up from 9,086 permits issued in 1997. The reported harvest for the season was 132,929 sockeye, 6,610 chinook and 1,999 coho salmon (Appendix G.5). The estimated total (reported and unreported) salmon harvest was 145,316. The combined estimated catch from the upper Copper River personal use and subsistence fisheries was 212,381 salmon, ranking as the second largest harvest on record.

1998 PRINCE WILLIAM SOUND HERRING FISHERIES

Preseason Outlook and Harvest Strategy

The Prince William Sound (PWS) herring management area encompasses all coastal waters of the Gulf of Alaska between Cape Suckling and Cape Fairfield, extending offshore to 59° N. latitude. Five herring fisheries occur during the year.

During the spring season, two fisheries target herring for sac roe using either seine or gillnet gear. Two spawn-on-kelp fisheries harvest either naturally occurring spawn on kelp or spawn on kelp suspended in pounds. In the fall, a food/bait fishery occurs. Of the five herring fisheries, only the wild spawn-on- kelp and the food-and-bait fishery are open entry fisheries.

For management purposes, all herring fisheries target on what is treated as a single major stock of herring that spawns during the mid-April to early May period. At the 1994 BOF meeting in Cordova, the minimum spawning biomass threshold was raised from 8,400 to 22,000 tons for the PWS stock. No fishery may be opened if the estimated spawning biomass is below this level. The 22,000 ton threshold is 25% of the potential spawning biomass from an unfished stock. The higher threshold will establish manageable harvest levels while reducing the risk of driving the population to low abundance through overfishing. When the stock size is between 22,000 and 42,500 tons, the PWS Herring Management Plan (5 AAC 27.365) allocates the projected available surplus to the five fisheries based on a 0 to 20 % harvest rate. The maximum harvest rate of 20% is applied when stock size is greater than 42,500 tons. The sac roe seine fishery is allocated 58.1 % of the available surplus; 16.3% is allocated to the food-and-bait fishery; the pound spawn-on-kelp fishery is allocated 14.2 %; the wild spawn-on-kelp fishery receives 8.0 %; and the gillnet sac roe fishery is allocated 3.4 %.

1998 Season Summary

The Prince William Sound Herring Management Plan, 5 AAC 27.365, allocates the projected available herring surplus between the five herring fisheries. This plan allows for exploitation rates from zero to 20% when the spawning biomass is between 22,000 tons and 42,500 tons. For management purposes, herring in all locations of the Sound are assumed to be one stock. The 1998 spawning biomass was projected to be 38,640 tons and dominated by age-4 fish (1994 year class) and age-6 (1992 year class). With the spawning biomass approaching the upper threshold of 42,500 tons, the exploitation rate was set at 15%. Fishery allocations were; 3,367 tons for the sac roe seine fleet, 197 tons for the gillnet sac roe fleet, 823 tons of herring were allocated to the pound fishery, and 464 tons were allocated to the wild spawn on kelp harvest.

The 1998 spring herring fisheries utilized approximately 4,184 tons of herring of the 4,851 allocated to the four fisheries. The total value of the sac roe fisheries and kelp fisheries has not been determined to date.

Purse Seine Sac Roe Fishery

The management objective for sac roe fisheries is to provide the highest quality product and remain within the harvest guideline. The minimum standards set by the industry this season were less restrictive than in 1997, due largely to the weak harvest in San Francisco and the harvest of small (less than 100 gram) fish in British Columbia. Several processors established their minimum standards at or near 130 grams while others suggested minimums as low as 110 would be acceptable. Utilizing acoustic surveys, spring age composition, and guidelines from the Statewide Management Plan, the department established the following harvest guideline for 1998: To minimize the harvest of recruit fish (age four and under), the department will not initiate a sac roe seine fishery when the average size of the catch is 125 grams or less. Based on current age and size information, a harvest with a 125-gram average size would result in slightly more than 50% of the catch being recruit sized fish. With the Prince William Sound herring population recovering but still depressed, it was necessary to limit the harvest of recruit fish.

With industry's minimum size standards being less than the department's standards, sampling was considered paramount to conducting a successful fishery and obtaining a high quality product. Daily sampling can track the changing roe maturity and identify locations of larger, older aged fish. Aerial and sonar surveys are used to determine appropriate boundaries for openings in order to keep the harvest within the limits of the quota or available processing capacity. Tendering and processing capacity appeared capable of handling the harvest guideline level of 3,367 tons. However, a single large harvest could compromise quality.

During late March, the department conducted an acoustic survey with Biosonics hydroacoustic gear. The survey covered Montague Island (Zaikof Bay, Rocky Bay, Stockdale Harbor and Port Chalmers) and, to a lesser extent, the northeast portion of PWS (Port Gravina and areas of Port Fidalgo). Preliminary results estimated between 20,000 to 28,000 tons of herring in the area ensonified.

The spring of 1998 was warmer than normal. Water temperatures were roughly 42° F during the acoustic survey in late March. Due to the early spring and warmer than normal water temperatures, the first aerial survey was flown on March 23, about a week earlier than normal. The March 23 aerial survey in the southeast area observed 50 tons of herring, 1.85 miles of active spawn, and approximately 3.55 miles of day old spawn. In Port Fidalgo, 30 tons of herring and 0.3 miles of spawn were observed. At Montague Island, large schools were observed in Rocky Bay and Zaikof Bays churning up mud. Two additional surveys during the week of March 23 observed negligible amounts of herring. However, an additional 7.8 miles of spawn was observed in the southeast area. As is customary, at 12:00 noon on April 1, the sac roe seine and gillnet fleets were placed on 48-hour advance notice.

Daily test fishing began on April 1 when a seine vessel arrived in Stockdale Harbor. This vessel, along with a tender, collected roe maturity samples around Montague Island. Due to poor weather, aerial surveys and test fishing were sporadic during the first week of April. Samples of herring through April 4 found fish predominately under 125 grams with a roe maturity of less than 10%. Based on aerial surveys through April 2, it was apparent that the sac roe seine and gillnet fisheries would most likely occur at Montague Island. With mature roe percentages nearing 10%, the sac roe seine fleet was placed on 24-hour advanced notice effective 12:00 noon on April 4.

On April 4, one sample collected near Gilmour Point averaged 9.9% mature roe and 118 grams. The R/V Montague arrived in Stockdale Harbor the evening of April 5. The weather had improved and additional samples were collected. The results from the samples collected on April 5 are as follows: Rocky Bay averaged 135 grams and 12.2% mature roe, Stockdale Harbor averaged 162 grams and 13.7% mature roe, Port Chalmers averaged 110 grams and 8.8% mature roe. The aerial survey on April 5 observed 7,700 tons at Montague and less than 250 tons elsewhere in the Sound. The advanced notice period for the sac roe seine fleet was reduced to 2-hours effective 12:00 noon April 6.

On April 6, test fishing occurred in Rocky Bay, Stockdale Harbor and Port Chalmers. Samples in Rocky Bay averaged 135 grams and 9.8% mature roe. Stockdale Harbor samples averaged 135 grams and 8.9% mature roe. In Port Chalmers, the east side samples averaged 113 grams and 7.8% mature roe while the west side averaged 128 grams and 9.7% mature roe. The best samples on April 6 were in Rocky Bay. However, the aerial survey estimate was that 4,000 tons of herring were in the lagoon area and several large schools were along the north side of the bay. If Rocky Bay was opened to sac roe seining, the harvest could easily have exceeded 5,000 tons. The western end of Port Chalmers was the only area, other than Rocky Bay, that met the department's size criteria of 125-gram minimum and, the

available biomass appeared to be within the range of the guideline harvest level. The commercial sac roe seine fishery was opened in the waters west and south of Gilmour Point for 30 minutes beginning at 4:55 p.m. Monday April 6. The harvest from the 30-minute period was 3,491 tons with an average roe percent of 9.6 and 133 grams. This exceeded the guideline harvest of 3,367 tons. The herring sac roe purse seine fishery was closed for the 1998 season.

Based on the March acoustic survey, the actual herring biomass was close to the projected biomass of 37,000 tons while the age composition of the population resembled the preseason forecast. In addition, there appears to be a strong recruit class of age-3 herring in the population. The total linear miles of shoreline spawn were 42.7 miles, up from 26.0 miles in 1996. The peak aerial biomass estimate was 12,000 tons with 70% sighted at Montague Island.

Gillnet Sac Roe Fishery

At a meeting in Cordova on April 5, department staff along with nearly all of the gillnet fleet in attendance, discussed management for this season's fishery. The management strategy, agreed to by all participants, was to test fish extensively until roe samples averaged 12% or better. The fleet and industry would be involved in deciding when and where the fishery would take place. The department would determine the length of the fishing period. The permit holders also stated they wanted to wait until spawning activity was initiated before starting an extensive test-fishing program.

The herring sac roe gillnet fishery was placed on 48-hour advance notice at 12:00 noon April 1. The advance notice period was reduced to 24-hours effective 12:00 noon on Sunday, April 5. On April 6, several purse seine test sets in Stockdale Harbor contained spawn-outs in the roe samples. With an increase in spawn-outs in the purse seine samples, the gillnet fleet was placed on 4-hour advanced notice effective 1:30 p.m. on Tuesday, April 7.

The first observed spawn at Montague Island was on Monday, April 6 in Zaikof Bay. This spawn was less than 0.5 mile long. With no spawning taking place other than Zaikof Bay and poor weather conditions on Tuesday, no test fishing occurred. On Wednesday, April 8, several small areas with spawn were developing near Montague Point, Graveyard Point, and Shad Creek. Test fishing with gillnets began on Wednesday at the west end of Port Chalmers, Gilmour Point, and in the finger lakes at the south end of Stockdale Harbor. Two samples from the west end of Port Chalmers averaged 177 grams and 10.5% mature roe. The Gilmour Point samples averaged 170 grams and 4.9% mature roe. The sample collected in the finger lakes area averaged 156 grams and 12.0% mature roe. The estimated biomass in the finger lakes area was 300 tons. The advanced notice period for the sac roe gillnet fleet was reduced to 2-hours effective 2:00 p.m. on Wednesday, April 8.

Test fishing continued on Thursday and, there was an increase in active spawning. The afternoon survey observed 3.2 miles of spawn from Graveyard Point east, 0.3 miles on the south side of Stockdale near the finger lakes, and 0.4 miles near Shad Creek. An estimated 7,000 tons of herring were observed in the Port Chalmers area, 300 tons in Stockdale Harbor, 800 tons between Graveyard Point and Montague Point, and 2,500 tons in Rocky Bay. Test fishing was conducted in the active spawn near Graveyard Point and Montague Point, in Port Chalmers, and the Gilmour Point area. The samples from the Graveyard Point to Montague Point area, both in and near the active spawn, averaged 180 grams and 7.3% mature roe. At Gilmour Point, samples averaged 161 grams and 5.0% mature roe. The low roe percentage at these two locations was due to the high male count. Roe maturity

percentages improved in the Port Chalmers area with samples averaging 161 grams and 12.1% mature roe.

The department held a meeting with permit holders and processors on the back deck of the R/V Montague at 1:00 p.m. to discuss the option of fishing on Thursday. Roe maturity samples in the Port Chalmers area were averaging above 12%. However, there was no documented spawn in the area to date. After examining the roe, processors felt that spawning was still several days away. They also stated roe percentages and quality would not improve much beyond the current numbers. Processors indicated they were willing to buy what was then available. Permit holders felt it was to early to fish since no spawning had occurred in the local area. They decided to resume sampling immediately following the deck meeting. Several boats were lined up to collect samples and the next announcement was scheduled for 4:00 p.m. When the test boats attempted to fish, herring avoided the nets and no samples were collected in the afternoon. At 5:45 p.m., all interested permit holders and industry representatives again met on the back deck of the R/V Montague. Permit holders felt that the herring were not ready because no spawning had occurred and they were extremely hard to catch. The announcement at 6:00 p.m. solicited test boats for the next morning and reduced the advance notice period to one-hour effective 10:00 a.m. Friday, April 10.

An aerial survey on Friday morning under poor conditions observed spawn between Graveyard Point and Montague Point (3.5 miles), at Shad Creek, in the finger lakes area in Stockdale Harbor, and at two new areas near the lagoon on the south shore of Rocky Bay. Test fishing was slow Friday morning due to 30-knot winds, rain, and snow. Some sets were made offshore in depths of approximately 10 fathoms. Most of the fish observed on Thursday had moved into deep water Friday. Roe samples were collected in Rocky Bay, from Graveyard Point to Montague Point, and in Port Chalmers. Samples averaged 169 grams and 12.2% mature roe in Rocky Bay, 164 grams and 9.6% between Graveyard Point and Montague Point, and 189 grams and 8.3% mature roe in Port Chalmers. Few fish were observed at Rocky Bay. Samples from Graveyard Point to Montague Point continued having a high male percentages and increasing spawnouts. The roe percentages dropped in Port Chalmers samples due to the increasing male count. The 1-hour advanced notice for the gillnet fleet resumed at 10:00 a.m. on Saturday, April 11.

The pattern of fish movements for several days had been few herring around during the morning's low water and then, as the tide moved in, the volume of herring increased. Surveys conducted mid-afternoon consistently observed more herring than the morning surveys. Test fishing continued on Saturday morning in Rocky Bay, Port Chalmers, and in the vicinity of Shad Creek in and around the active spawn. Samples were again better than 12% in Rocky Bay but only a small volume of herring was present. In Port Chalmers, fish remained elusive and roe percentages were below 10%. Roe maturity at several areas around Wilby Island averaged above 12%. However, the shoreline on the south side of Gilmour Point averaged 7%, due to mostly to spawn-outs. In the Shad Creek area, roe percentages were low in the morning due to a high male count. By late afternoon, roe percentages climbed to 12.8% and the volume of herring increased to nearly 1,500 tons. Based on these samples, the waters south of 60° 18.5' N. latitude and east of 147 °19.0' W. longitude opened for a three-hour period from 8:45 p.m. until 11:45 p.m. There was a long discussion amongst the gillnet fleet as to whether they should fish. Comments made in support of not fishing included the grounds price being offered, the fact that it would be dark before the fishery was over, and the notion that it would be better to wait to see if roe percentages increased. The fishery opened as scheduled but no effort or harvest occurred. Saturday evening, after it was evident that no one was going to fish, boats were lined up for

sampling in the morning.

Sampling continued in the Shad Creek area Sunday morning. A total of nine sets were made and samples averaged 167 grams and 9.5% mature roe. The low roe percentage was again due to a high male count. Herring movements were following the same pattern as seen in previous days by remaining offshore and deep in the morning. Test fishing continued and roe percentages improved throughout the day. Nine additional samples were collected and these averaged 161 grams and 11.5% mature roe. Based on the improved roe percentages, the area previously announced was again opened for a 3-hour period from 3:00 p.m. until 6:00 p.m. on Sunday April 12. Skiff surveys indicated good roe percentages were being harvested with the best being close to Shad Creek. By 5:00 p.m., it appeared that an extension would be necessary to ensure the quota was taken during a single period. With enough tender capacity for a 400 ton harvest, exceeding the quota would not produce waste. The fishery was extended an additional 30 minutes. The harvest for the 3.5-hour fishery was 356 tons at 11.0% mature roe. The harvest quota for the gillnet fishery was 197 tons. The sac roe gillnet fishery closed for the season following the 3.5-hour period on April 12.

Wild Spawn-on-Kelp Harvest

On April 13, wild kelp harvesters were placed on 48-hour advance notice. Spawning had been first observed at Montague Island on April 6. By April 12, approximately 15 mile/days of spawn had been documented at Montague Island. The northern Montague Island area with its large spawning biomass was again the only area under consideration for a wild harvest opening. While Montague Island has a diverse composition of kelp species, including most of the species found in other areas of Prince William Sound, *fucus* is the predominant marketable species there. Limited quantities of the traditional subtidal kelp species such as ribbon, hair, or sieve occur there. The 1998 harvest was expected to primarily target *fucus* kelp although some divers were planning to harvest ribbon kelp if marketable product could be located. Skiff surveys conducted by department personnel and harvesters indicated that spawn deposition was intermittent along the beaches in the Port Chalmers and Stockdale Harbor areas. Small, scattered kelp beds had received marketable coverage of roe but these were closely surrounded by beds with lighter roe coverage. The heaviest intertidal spawn was found on eel grass and other unmarketable kelp species. New *fucus* growth in many areas appeared to be delayed which further limited the harvest potential in areas. After April 6, spawning continued to increase in distribution and intensity over the next 10 days. Prior to the onset of poor weather, an aerial survey on April 16 observed 6.2 miles of spawn between Graveyard Point and Montague Point. On April 18, advanced notice for a wild harvest was reduced to 24 hours effective Monday, April 20 to better take advantage of low tides that would be occurring later in the week. A survey on April 19 observed 2.5 miles of spawn between Port Chalmers and Stockdale Harbor.

Advanced notice was reduced to one hour effective 4:00 p.m. Wednesday, April 22. Only two buyers had confirmed their interest in participating in the wild spawn-on-kelp harvest. Harvesters interested in participating were advised to secure a market prior to departing for Montague Island or taking any spawn on kelp. One kelp buyer was physically present on the grounds by April 21 and had examined spawning areas. He indicated that there was acceptable product available in areas between Montague Point and Graveyard Point. A three hour harvest period beginning at 5:00 p.m. on April 22 was announced. The start of the period coincided with low tide, which allowed late arriving buyers sufficient time to direct their harvesters to locations with acceptable roe coverage. To accommodate persons interested in diving for ribbon kelp, a second period was announced for Thursday, April 23 beginning at 8:45 a.m. and ending at 2:45 p.m. This second period bracketed the morning's high tide to limit the harvest of low

quality *fucus* while providing an opportunity for divers to participate in the harvest. Additional openings around low tides were planned provided buyers showed continued interest in more *fucus* harvest. An estimated 53 persons participated in the first harvest period taking an estimated 18,600 pounds of *fucus*. Areas with the best roe coverage were quickly harvested and buyers directed harvesters to cease picking prior to the actual close of the period. Four divers harvested ribbon kelp during the second period taking an estimated 2,600 pounds of ribbon kelp.

A four hour harvest period around the evening's low tide on Thursday, April 23 resulted in a harvest of 5,275 pounds of *fucus*. The shoreline from 400 yards east of Graveyard Point to the southern entrance of Stockdale Harbor was open. Prior to the start of the third harvest period, one of the two buyers present indicated they would no longer be buying *fucus* kelp and would be departing the grounds soon. With the departure of one buyer, a majority of the harvesters no longer had a market and the most left the grounds.

On Thursday, April 23, the next harvest period was announced. Initially, the area opened was the shoreline from 400 yards east of Graveyard Point to the southern entrance of Stockdale Harbor where, again, limited areas of marketable roe on kelp could be found. However, given the decreased effort and the expectation that the quota would not be reached, the remaining buyer requested additional time and area be made available for kelp harvesting. This would allow his harvesters to better position themselves on the discreet, limited areas with marketable roe on kelp and avoid overharvesting the few areas with good roe-on-kelp coverage. The time and area to be opened was amended to include the shoreline of Montague Island south of Montague Point and the duration was extended to 14 hours to allow both picking and diving to occur in the same period. The remaining buyer indicated they would be departing the area at the end of Thursday's harvest period. Should the few divers find additional markets for ribbon kelp, the shoreline south of Montague Point was opened on a daily schedule through Monday, April 27. However, no additional harvesting occurred after Thursday's 14-hour harvest period. A total of 29,337 pounds of *fucus* kelp and 5,458 pounds of ribbon kelp were harvested leaving approximately 80,000 pounds of the quota unharvested.

Spawn-on-Kelp in Pounds Fishery

PWS herring pound permit holders were given the option preseason of choosing to operate an open pound with a kelp quota of 660 blades or a closed pound with a kelp quota of 425 blades. Open pounds would be allowed to fish in the Montague Island area where a majority of the PWS spawning biomass has been located in recent years. Of the 128 limited entry permit holders, 15 indicated their intention to operate open pounds, while 21 permit holders advised the department of their intention to operate closed pounds. A total of 92 permit holders did not respond by the April 1 open pound reporting deadline. These permit holders would be granted a closed pound blade quota in the event they decided to participate in the fishery. Once the fishery commenced, nine permit holders that originally stated their intention to operate closed pounds decided not to introduce herring to their pounds, opting to open pound instead. The pound fishery occurred in the waters of Port Fidalgo in the Eastern District, Fairmont Bay in the Northern District, Windy Bay in the Southeastern District, and in the Montague District. Permit holders began staging pound structures in the Port Fidalgo area and Montague Island area during the first week in April. Pound location was not static throughout the fishery with permit holders moving structures between bays depending on spawning activity and weather conditions. Permit holders initially set up pound structures in Landlocked Bay, Fish Bay and Two Moon Bay and in Rocky Bay in the Montague Island area. A lack of herring forced permit holders, who began operations in the Eastern District, to eventually relocate their pound structures and kelp to either the Fairmont Bay area or Windy Bay later in the season.

The first aerial survey of the season was flown on March 23. Approximately 100 tons of herring were observed between Cordova, Galena Bay and Montague Island. Five miles of spawn was observed in Port Gravina. The aerial survey flown on March 25 between Simpson Bay and Knowles Head observed less than 100 tons of herring and seven miles of spawn. Surveys on March 27 and 31 were conducted under adverse weather conditions with no herring observed either day.

On April 2, it was announced that open pounds could be operated in the Montague District, in the waters north, and east of a line from Porcupine Point to Point Freemantle beginning 12:00 noon Saturday, April 4. The closed pound fishery was placed on 48-hour notice at 12:00 noon Saturday, April 2. It was anticipated that the closed pound fishery would occur in the Port Fidalgo area east of a line from Porcupine Point to Point Freemantle. An opening in this area was dependent on aerial survey results indicating sufficient biomass. The aerial survey flown on Thursday April 2 covered the northeast shore from Simpson Bay to Galena Bay; Fairmont and Wells Bay area, all of the Naked Island area, and the west end of Montague Island. Approximately 15 tons of herring were observed in Two Moon Bay, while 50 tons were observed in Snug Corner Cove. In Port Gravina, 130 tons of herring and less than a quarter mile of spawn was observed. Approximately 2,000 tons of herring were seen in the Port Chalmers and Stockdale Harbor areas.

Inclement weather continued to hamper aerial survey operations on the third and fourth of April. No surveys were flown. On Saturday, April 4, open pounding opened along the northeast shore of PWS. At that time, five pound structures in the northeast area were configured to operate as closed pounds. Only one open pound, located in Landlocked Bay, was fishing. Later that week in Fish Bay, four permit holders sharing a single closed pound structure decided to change to open pounding prior to having introduced herring into the closed pound. They made this decision to take advantage of the discrete but almost continual spawning activity that was occurring near the east shore of Fish Bay. Meanwhile, permit holders intending to place pound structures in the Montague area were awaiting the arrival of kelp. Most did not have pounds in place until the weekend of April 11-12.

The advance notice for the closed pound fishery was reduced to 24-hours effective 12:00 noon Sunday, April 5. The advance notice was reduced, in the absence of current aerial survey results, to respond quickly to any positive changes in the herring biomass in the northeast portion of PWS. With improving weather, aerial surveys resumed on April 5. The survey was conducted under good conditions and observed less than 100 tons of herring and less than 0.3 miles of spawn in the entire northeast area. Only 30 tons of herring and less than 0.1 miles of spawn were documented in Port Gravina. In the Montague area, 2,000 tons of herring was seen in Port Chalmers, 3,300 tons in the Stockdale area and 3,000 tons in Rocky Bay.

An aerial survey conducted under fair to poor conditions on April 6 observed 250 tons of herring between Cordova and Port Gravina. A total of 106 tons of herring were seen along the northeast shore, while 225 tons were seen along the north shore in Fairmont, Cedar and Wells bays. One tenth of a mile of herring spawn was documented in Fish Bay and two tenths of a mile of spawn was observed in Virgin Bay. The aerial survey conducted on April 7 observed 390 tons of herring between Cordova and Port Gravina. There was 313 tons of herring seen along the northeast shore and 150 tons along the north shore in Fairmont, Cedar and Wells bays. Very limited spawning activity was observed in Fish and Virgin bays, in Hells Hole or at Port Gravina. On April 8, the aerial survey of the eastern and northern shorelines of PWS saw 420 tons of herring between Cordova and Knowles Head. A total of 250 tons was observed

along the northeast shore, mainly in Fish Bay, while 325 tons were seen along the north shore in Fairmont, Cedar and Wells Bay. Again, limited spawning activity was observed in Fish, Virgin and Fairmont bays and at Point Gravina. In addition, on April 8, the ADF&G chartered vessel F/V Miss Emily arrived at Landlocked Bay. Department personnel were aboard to monitor the pound fishery and to conduct herring disease research in relation to closed pounding. This is the final year of a two-year study, funded in part by the Exxon Valdez Trustee Council, seeking to understand the relationship between closed pounding and stress induced disease outbreaks. Results from the herring pound disease study should be available later in the year.

On Thursday, April 9, the advance notice for the closed pound fishery was reduced to 4 hours. Although that day's aerial survey observed fewer herring in the northeast than previous surveys, it was felt that the observed decrease was most likely due to the time of the survey and stage of the tide. Although less than half the herring biomass needed to open the closed pound fishery had been observed in the Northeast, the general trend had been a slow, but steady improvement in the herring biomass. Also on April 9, the waters of Fairmont Bay, north of a line from Granite Point to Fairmont Point were opened for the operation of open pound gear. In 1997, herring observed in this area spawned over a short (4-5 day) period.

On Friday April 10, an aerial survey, conducted under poor conditions, observed few herring north of Knowles Head. A small amount of spawn was observed in Fish Bay and along the north shore of Hawkins Island. The aerial survey conducted on Saturday, April 11 under good conditions observed a marked increase in the herring biomass inside Port Gravina. Schools of herring were observed along the north shore of Port Gravina from the head of the bay out to Hells Hole. In Port Fidalgo, 100 tons of herring were observed in Two Moon Bay and 30 tons were seen in Snug Corner Cove. On the north shore, 280 tons of herring were located between Granite, Cedar and Wells Bays. Effective at 8:00 p.m. Saturday, April 11, the waters of Port Gravina east of a line from Red Head to Gravina Point were opened to the operation of open pound gear. Effective 12:00 noon Sunday, April 12, the waters inside the Point Freemantle to Porcupine Point line were opened to seining for the introduction of herring into closed pounds. The waters of Tatitlek Narrows from the ferry dock to Black Point remained closed to seining. During the day, three seiners made sets in Port Fidalgo to secure herring for introduction into pounds. Effort was concentrated near the entrance of Two Moon Bay. Although 25-50 ton sets were readily made, the samples taken by the permit holders to ascertain roe maturity indicated a high percentage (50% - 100%) were spawned out herring. Permit holders were unwilling to introduce herring with such a high percentage of spawn-outs into their closed pounds. Sets made the next day resulted in herring with equally high spawn-out percentages. Consequently, no herring from the northeast area were introduced into closed pounds. Some permit holders then elected to switch to open pounding and these individuals relocated to Fairmont Bay. Given the lack of spawning activity, the large number of spawned out herring encountered in Port Fidalgo, and observed spawning activity near Hawkins Island, the entire Southeastern District was opened to open pounding effective 12:00 noon, Monday April 13. Aerial surveys were again canceled due to bad weather on the 13th and 14th of April. The number of permit holders operating closed pounds in the northeast portion of PWS had dropped from 21 to 15. These permit holders asked the department to consider allowing closed pounding to occur in Windy Bay where a small biomass of herring had been repeatedly observed. A gillnet sample of herring from Windy Bay was small but revealed few spawn outs, with most of the fish being females in varying stages of maturity. In recognition of the extraordinarily low effort in the pound fishery and the lack of prespawning herring in Port Fidalgo, the waters of Windy Bay on Hawkins Island were opened to seining for the introduction of herring into closed pounds effective Thursday, 12:00 noon on

April 16. The latest aerial survey information indicated that the herring biomass in Windy Bay was sufficient to accommodate the few remaining closed pounders and early spawning in the Port Gravina area had been exceptionally strong this spring, which reduced conservation concerns for the early spawning herring biomass in eastern PWS. Seining began in Windy Bay at 12:00 noon on April 16. All permit holders operating closed pounds were able to seine and introduce the maximum allocation of herring to their pounds by the evening of April 17. Seining for the introduction of herring into pounds was closed in Windy Bay and the area east and north of a line from Point Freemantle to Porcupine Point effective 12:00 noon Saturday, April 18. Aerial surveys continued to monitor spawning activity. Because of fresh spawn activity observed near Fairmont Island, waters within one mile of the island were opened to open pounding effective 12:00 noon, Monday April 20.

Harvesting of spawn-on-kelp from pounds commenced on April 14. Most permit holders operating in the Fairmont area, Montague area or in Windy Bay had completed harvest operations by April 25. A total of 35 permit holders actively participated in the fishery. Of those, 32 permit holders harvested approximately 23,000 pounds of unprocessed product. Fifteen closed pound permits harvested 9,900 pounds of product. Nine permit holders who began the season with closed pounds and then switched to open pounds harvested 4,780 pounds of spawn on kelp. The eleven open pound permit holders harvested 8,200 pounds of spawn on kelp. No value has been assigned to the pound harvest to date.

Food/Bait Fishery

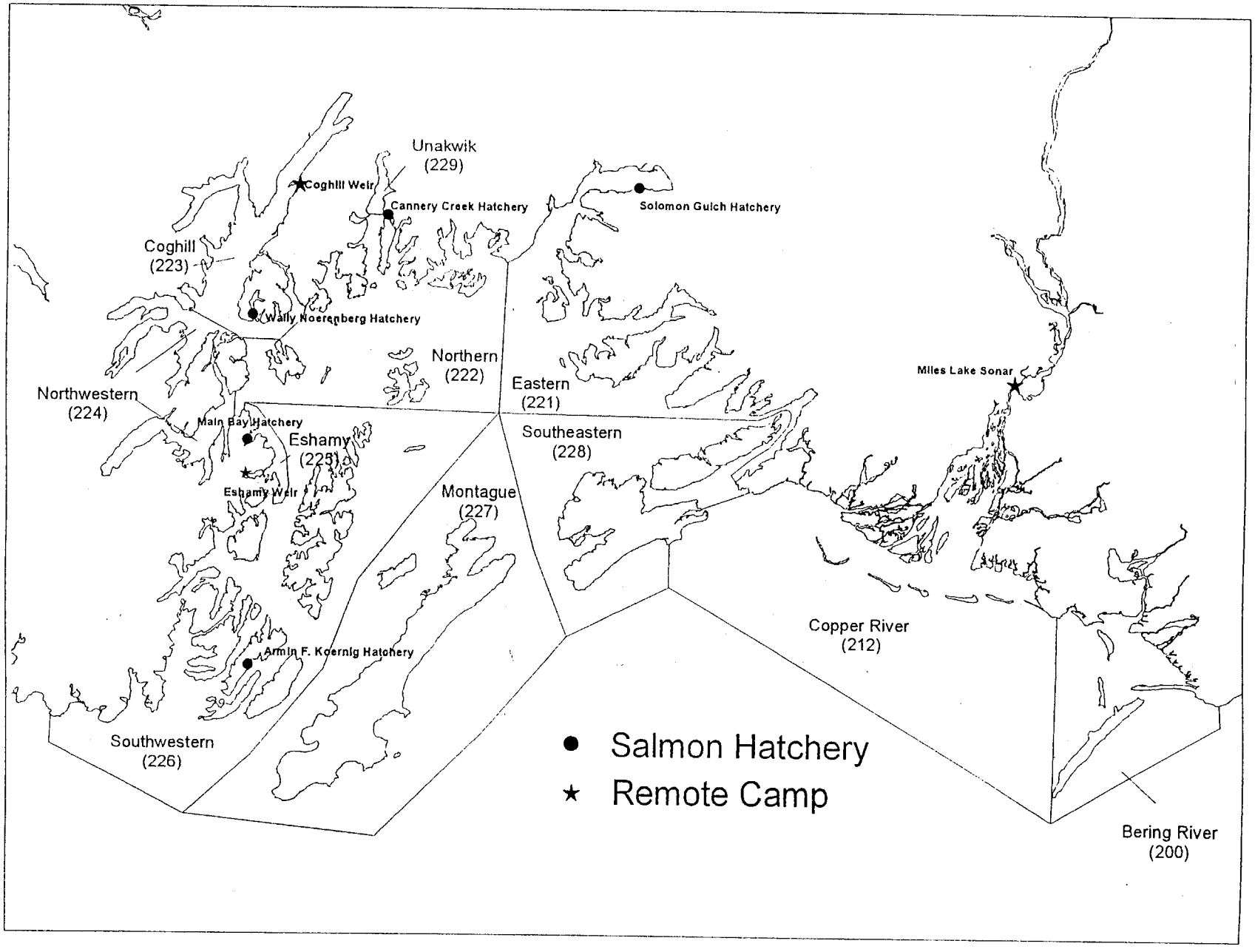
The opening date in regulation for the 1998 fall food/bait fishery was October 1. Market conditions and processor preferences delayed the commencement of the fishery until November 2. On October 31, the Department of Fish and Game conducted a test fishery and harvested 14.6 tons of herring off of Knowles Head in eastern PWS to evaluate the size and relative abundance of herring in the area. Following the test fishery on October 31, it was decided to conduct the food/bait fishery in the Montague Island area as originally planned. Ten permit holders participated in the fishery, including one permit holder attempting to use a pair trawl. The fishery opened on November 2 and was closed by field announcement on November 4 after it appeared the GHL of 967 tons had been taken. Following deliveries to area processors, the final landed weight of the herring harvest was approximately 80 tons less than the GHL and permit holders asked to have the fishery reopened to harvest the remaining quota. The fishery was reopened for a 12-hour period on November 6 and an additional 113 tons of herring were landed. The average size of the herring harvested in the food/bait fishery was 143 grams and the catch was predominated by age-3 and age-4 herring.

1998-1999 Herring Season Outlook

Since the 1993 crash of the PWS herring stock, a rebuilding phase has been ongoing. The return in 1999 is projected to be of sufficient size to allow all five herring fisheries to occur.

The 1999 forecast was created using an age structured analysis model. Considering natural mortality and growth, the 1999 population is estimated to be 39,500 tons. A 15% exploitation rate on the stock was established, creating a guideline harvest level of 5,934 tons of herring for all five fisheries. The biomass is expected to be comprised of 79% age-3 through age 5 herring.

APPENDIX A: PRINCE WILLIAM SOUND AREA WIDE INFORMATION



Appendix A.1. Prince William Sound Area showing commercial fishing districts, salmon hatcheries, weir locations and Miles Lake sonar camp.

Appendix A.2. Commercial salmon harvest by species, gear type and district in the Prince William Sound Management Area, 1998.

District	Effort	Chinook	Sockeye	Coho	Pink	Chum	Total
Eastern	124	71	6,694	29,971	2,231,061	107,854	2,375,651
Northern	124	24	3,356	5,134	5,035,736	56,502	5,100,752
Coghill	88	20	1,702	1,531	2,845,157	21,600	2,870,010
Southwestern [a]	123	21	6,615	13,146	8,425,853	4,030	8,449,665
Montague [b]	60	84	1,439	391	430,252	204,536	636,702
Southeastern	27	7	607	407	350,081	4,685	355,787
Purse Seine	149	227	20,413	50,580	19,318,140	399,207	19,788,567
Bering River [a]	86	70	8,439	12,284	5	2	20,800
Copper River [a,b]	517	68,827	1,341,748	108,232	20,829	5,022	1,544,658
Unakwik [a]	34	10	13,651	55	1,932	586	16,234
Coghill [a]	307	605	59,463	2,925	383,604	347,317	793,914
Eshamy	157	2	98,002	252	101,068	343	199,667
Drift Gillnet	522	69,514	1,521,303	123,748	507,438	353,270	2,575,273
Eshamy	16	1	25,533	91	33,916	214	59,755
Set Gillnet	16	1	25,533	91	33,916	214	59,755
Solomon Gulch	1	2	85	20,199	3,428,348	28,666	3,477,300
Cannery Creek	1	0	0	0	1,324,307	0	1,324,307
Wally Noerenberg	1	978	20	0	2,437,615	490,257	2,928,870
Main Bay	1	0	111,373	0	0	292	111,665
Armin F. Koernig	1	0	0	0	1,634,956	0	1,634,956
Gulkana	1	0	36,810	0	0	0	36,810
Hatchery [c]	6	980	148,288	20,199	8,825,226	519,215	9,513,908
Donated Fish	0	0	0	0	0	0	0
ADF&G Test Fish	0	0	0	0	0	0	0
Confiscated Fish	6	188	241	3	395	5	832
Total	6	188	241	3	395	5	832
Prince William Sound Total		70,910	1,715,778	194,621	28,685,115	1,271,911	31,938,335

[a] Does not include salmon taken for home use as reported on fish tickets.

[b] Totals include discarded sockeye, coho, pink and chum salmon.

[c] Hatchery sales for hatchery operating costs. Includes meal production/ roe salvage sales, carcass sales and processor discards. Excludes post egg-take roe sales at hatcheries.

Appendix A.3. Commercial salmon harvest by species from all gear types, Prince William Sound Area, 1971 - 1998.

	Catch by Species					
Year [a]	Chinook	Sockeye	Coho	Pink	Chum	Total
1971	20,142	741,945	327,697	7,312,730	579,552	8,982,066
1972	23,003	976,115	124,670	57,090	46,088	1,226,966
1973	22,638	473,044	199,019	2,065,844	740,017	3,500,562
1974	20,602	741,340	76,041	458,619	89,210	1,385,812
1975	22,325	546,634	84,109	4,453,041	101,286	5,207,395
1976	32,751	1,008,912	160,494	3,022,426	370,657	4,595,240
1977	22,864	943,943	179,417	4,536,459	573,166	6,255,849
1978	30,435	505,509	312,930	2,917,499	489,771	4,256,144
1979	20,078	369,583	315,774	15,615,810	349,615	16,670,860
1980	8,643	208,724	337,123	14,161,023	482,214	15,197,727
1981	20,782	784,469	396,163	20,558,304	1,888,822	23,648,540
1982	47,871	2,362,328	623,877	20,403,423	1,336,878	24,774,377
1983	53,879	908,469	365,469	13,977,116	1,048,737	16,353,670
1984	39,774	1,303,515	609,484	22,119,309	1,229,185	25,301,267
1985	43,735	1,464,563	1,025,046	25,252,924	1,321,538	29,107,806
1986	42,128	1,288,712	426,240	11,410,302	1,700,906	14,868,288
1987	41,909	1,737,989	175,214	29,230,303	1,919,415	33,104,830
1988 [b]	31,797	767,674	477,816	11,820,121	1,843,317	14,940,725
1989 [b]	32,006	1,175,238	424,980	21,886,466	1,001,809	24,520,499
1990 [b]	22,163	911,607	524,274	44,165,077	967,384	46,590,505
1991 [c]	35,355	1,734,544	641,854	37,135,561	352,321	39,899,635
1992 [d]	41,306	1,771,612	619,460	8,637,116	334,376	11,403,870
1993 [e]	32,005	1,851,133	445,612	5,761,097	1,186,365	9,276,212
1994 [f]	48,558	1,514,329	1,058,154	36,886,301	1,058,213	40,565,555
1995 [f]	67,083	1,523,464	992,798	16,221,493	864,245	19,669,083
1996 [f]	56,457	3,000,602	459,253	26,042,942	2,103,559	31,662,813
1997 [f]	52,482	4,163,074	83,113	25,836,563	2,227,190	32,362,422
1998 [f]	70,910	1,715,778	194,621	28,685,115	1,271,911	31,938,335
Ten Year Average (1988-97)	41,921	1,841,328	572,731	23,439,274	1,193,878	27,089,132

[a] Includes catches by all gear types and hatchery sales from the Eastern, Northern, Coghill, Unakwik, Northwestern, Eshamy, Southwestern, Montague, Southeastern, Copper River and Bering River Districts.

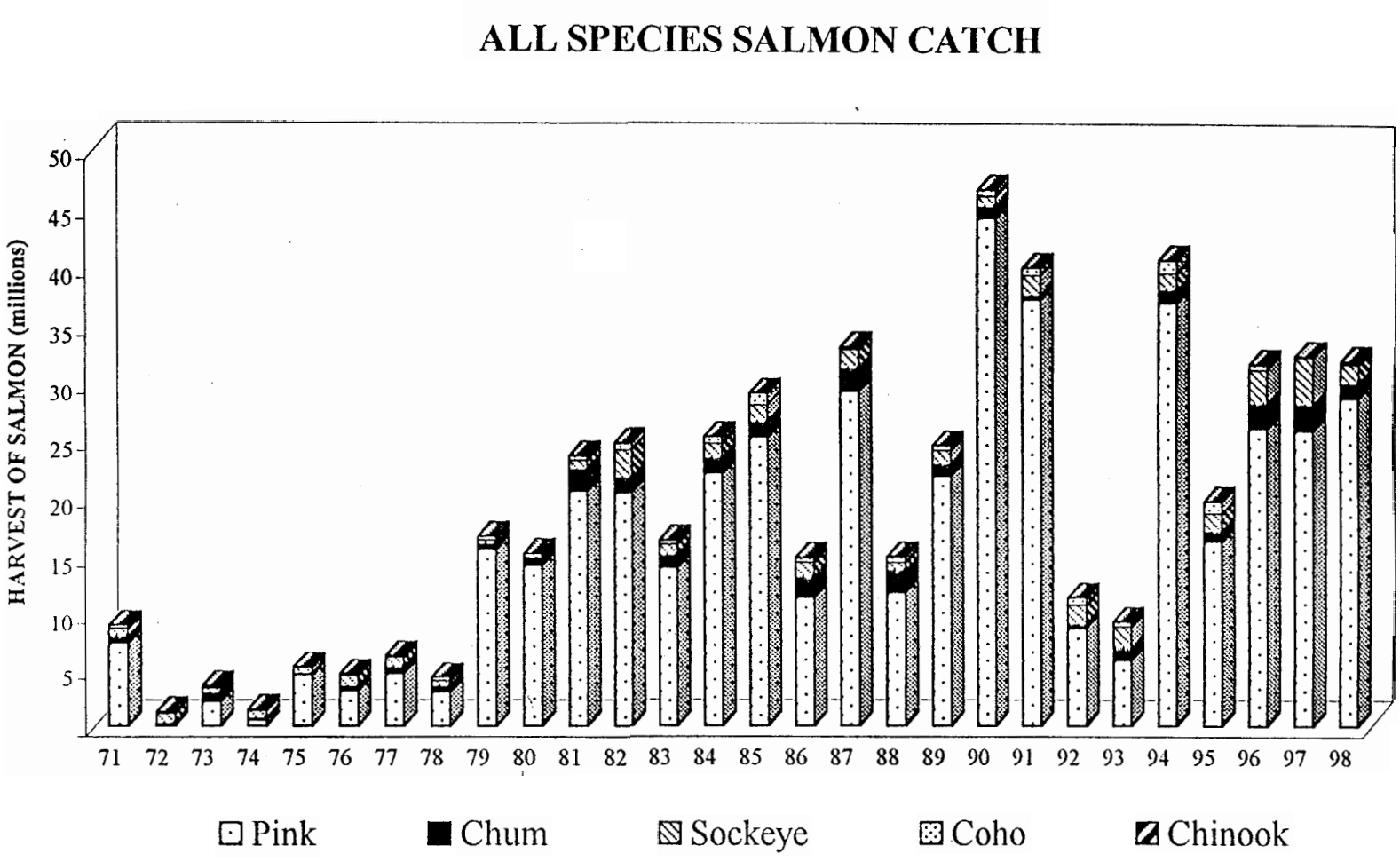
[b] Includes confiscated and educational special use permits. Also includes hatchery sales harvests and carcass sales.

[c] Includes confiscated and educational special use permits, hatchery sales harvests, donated and discarded catches.

[d] Includes catches from confiscated and educational special use permits, hatchery sales harvest and test fisheries.

[e] Includes catches from confiscated permits, hatchery sales harvests, donated fish harvest and test fisheries.

[f] Includes catches from confiscated permits, all hatchery sales harvests (including roe salvage) and test fisheries.



Appendix A.4. Commercial salmon harvest by species for all gear types combined, Prince William Sound, 1971 - 98.

Appendix A.5. Mean price and estimated exvessel value of the total commercial salmon harvest by gear type, Prince William Sound, 1998.

PURSE SEINE

Species	Number	Pounds	Avg. Wt.	Price [a]	Value
Chinook	227	3,999	17.62	1.10	$4,386
Sockeye	20,413	126,424	6.19	1.01	$127,854
Coho	50,580	398,917	7.89	0.31	$124,325
Pink	19,318,140	70,820,076	3.67	0.12	$8,565,392
Chum	399,207	3,473,588	8.70	0.27	$950,912
	19,788,567	74,823,004			$9,772,869

DRIFT GILLNET

Species	Number	Pounds	Avg. Wt.	Price	Value
Chinook	69,514	1,566,396	22.53	2.13	$3,341,148
Sockeye	1,521,303	9,124,380	6.00	1.45	$13,223,761
Coho	123,748	1,087,378	8.79	0.35	$379,366
Pink	507,438	1,709,231	3.37	0.15	$249,293
Chum	353,270	2,748,629	7.78	0.38	$1,035,808
	2,575,273	16,236,014			$18,229,376

SET GILLNET

Species	Number	Pounds	Avg. Wt.	Price	Value
Chinook	1	20	20.00	1.25	$25
Sockeye	25,533	160,111	6.27	1.11	$177,723
Coho	91	819	9.00	0.41	$336
Pink	33,916	118,990	3.51	0.14	$16,659
Chum	214	1,603	7.49	0.21	$337
	59,755	281,543			$195,079

HATCHERY SALES [b]

Species	Number	Pounds	Avg. Wt.	Price	Value
Chinook	980	18,097	18.47	1.25	$22,621
Sockeye	144,688	953,857	6.47	1.00	$953,857
Coho	20,199	182,801	9.05	0.35	$63,980
Pink	8,825,226	32,688,425	3.70	0.19	$6,283,525
Chum	519,215	4,204,514	8.10	0.30	$1,261,354
	9,510,308	38,047,694			$8,585,338

OTHER GEAR [c]

Species	Number	Pounds	Avg. Wt.	Price	Value
Chinook	188	3,336	17.74	1.50	$5,004
Sockeye	241	1,489	6.18	1.40	$2,085
Coho	3	33	11.00	0.30	$10
Pink	395	1,808	4.58	0.15	$271
Chum	4	43	8.60	0.30	$13
	831	6,709			$7,383

Gear Type	Value of Catch	No. of Permits	Average Earnings
Purse Seine	$9,772,869	149	$65,590
Drift Gillnet	$18,229,376	522	$34,922
Set Gillnet	$195,079	16	$12,192
Subtotal-Value of CPF Catch	$28,197,324		
Hatchery	$8,585,338		
Other Gear	$7,383		
GRAND TOTAL	$36,790,045		

[a] Mean prices are estimated at the end of the season based on the average of cash buyers and the advance prices paid by the canneries on the grounds. They do not reflect the spring adjustments paid by some companies.

[b] Prices are an average of sales harvest prices excluding roe sales.

[c] Includes the sales of confiscated fish.

Appendix A.6. Total commercial salmon harvest and estimated value by gear type and district, Prince William Sound Area, 1998.

	Numbers of Fish						
District	Chinook	Sockeye	Coho	Pink	Chum	Total	Estimated Value [a]
Eastern	71	6,694	29,971	2,231,061	107,854	2,375,651	1,385,994
Northern	24	3,356	5,134	5,035,736	56,502	5,100,752	2,367,466
Coghill	20	1,702	1,531	2,845,157	21,600	2,870,010	1,722,322
Southwestern	21	6,615	13,146	8,425,853	4,030	8,449,665	3,119,831
Montague	84	1,439	391	430,252	204,536	636,702	989,767
Southeastern	7	607	407	350,081	4,685	355,787	187,488
PURSE SEINE TOTAL	227	20,413	50,580	19,318,140	399,207	19,788,567	9,772,869
Bering River	70	8,439	12,284	5	2	20,800	141,236
Copper River	68,827	1,341,748	108,232	20,829	5,022	1,544,658	15,553,099
Coghill	10	13,651	55	1,932	586	16,234	1,692,340
Eshamy	605	59,463	2,925	383,604	347,317	793,914	726,790
Unakwik	2	98,002	252	101,068	343	199,667	115,911
DRIFT GILLNET TOTAL	69,514	1,521,303	123,748	507,438	353,270	2,575,273	$18,229,376
Eshamy	1	25,533	91	33,916	214	59,755	195,079
SET GILLNET TOTAL	1	25,533	91	33,916	214	59,755	$195,079
Solomon Gulch	2	85	20,199	3,428,348	28,666	3,477,300	2,931,531
Cannery Creek	0	0	0	1,324,307	0	1,324,307	826,043
Wally Noerenberg	978	20	0	2,437,615	490,257	2,928,870	2,858,766
Main Bay	0	111,373	0	0	292	111,665	770,163
Armin F. Koernig	0	0	0	1,634,956	0	1,634,956	1,014,935
Gulkana	0	36,810	0	0	0	36,810	183,900
HATCHERY SALES TOTAL	980	148,288	20,199	8,825,226	519,215	9,513,908	$8,585,338 [b]
Donated Fish	0	0	0	0	0	0	0
ADF&G Test Fish	0	0	0	0	0	0	0
Confiscated	188	241	3	395	5	832	7,383
OTHER GEAR TOTAL	188	241	3	395	5	832	$7,383
PRINCE WILLIAM SOUND GRAND TOTAL	70,910	1,715,778	194,621	28,685,115	1,271,911	31,938,335	$36,790,045

[a] (Reported number of pounds delivered by species) x (estimated average price per pound for that species and district) = Estimated Value. Actual value may vary.

[b] Hatchery sales for hatchery operating costs. Does not include salmon roe sales.

Appendix A.7. Average price paid to permit holders for salmon, Prince William Sound, 1989-1998.

Species [a]	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
King Salmon	$2.25	$2.24								
Copper/Bering Districts			$1.65	$2.50	$1.82	$1.43	$2.19	$1.96	$2.00	$2.07
Prince William Sound			$1.00	$1.55	$1.07	$0.80	$0.91	$0.71	$1.00	$0.94
Sockeye Salmon										
Copper River	$2.30	$2.13	$1.28	$2.50	$1.32	$1.27	$1.67	$1.38	$0.88	$1.49
Bering River	$2.30	$2.13	$1.28	$2.50	$1.40	$1.06	$1.44	$1.21	$0.88	$1.35
Coghill/Unakwik Districts	$2.00	$1.50	$1.28	$1.55	$0.93	$0.94	$0.75	$0.82	$0.80	$1.24
Eshamy		$1.45	$1.28	$1.55	$0.86	$1.19	$1.06	$0.85	$0.80	$1.11
General Purse Seine	$2.00	$1.50	$1.00	$1.55	$0.83	$0.88	$0.94	$0.73	$0.85	$1.06
Coho Salmon										
Copper/Bering Districts	$0.60	$0.97	$0.65	$0.90	$0.80	$0.74	$0.52	$0.53	$0.30	$0.46
Prince William Sound	$0.70	$0.97	$0.45	$0.90	$0.77	$0.60	$0.42	$0.36	$0.30	$0.33
Pink Salmon	$0.35	$0.30	$0.12	$0.18	$0.16	$0.16	$0.18	$0.07	$0.12	$0.13
Chum Salmon	$0.35	$0.70	$0.40	$0.55	$0.68	$0.45	$0.45	$0.13	$0.27	$0.22

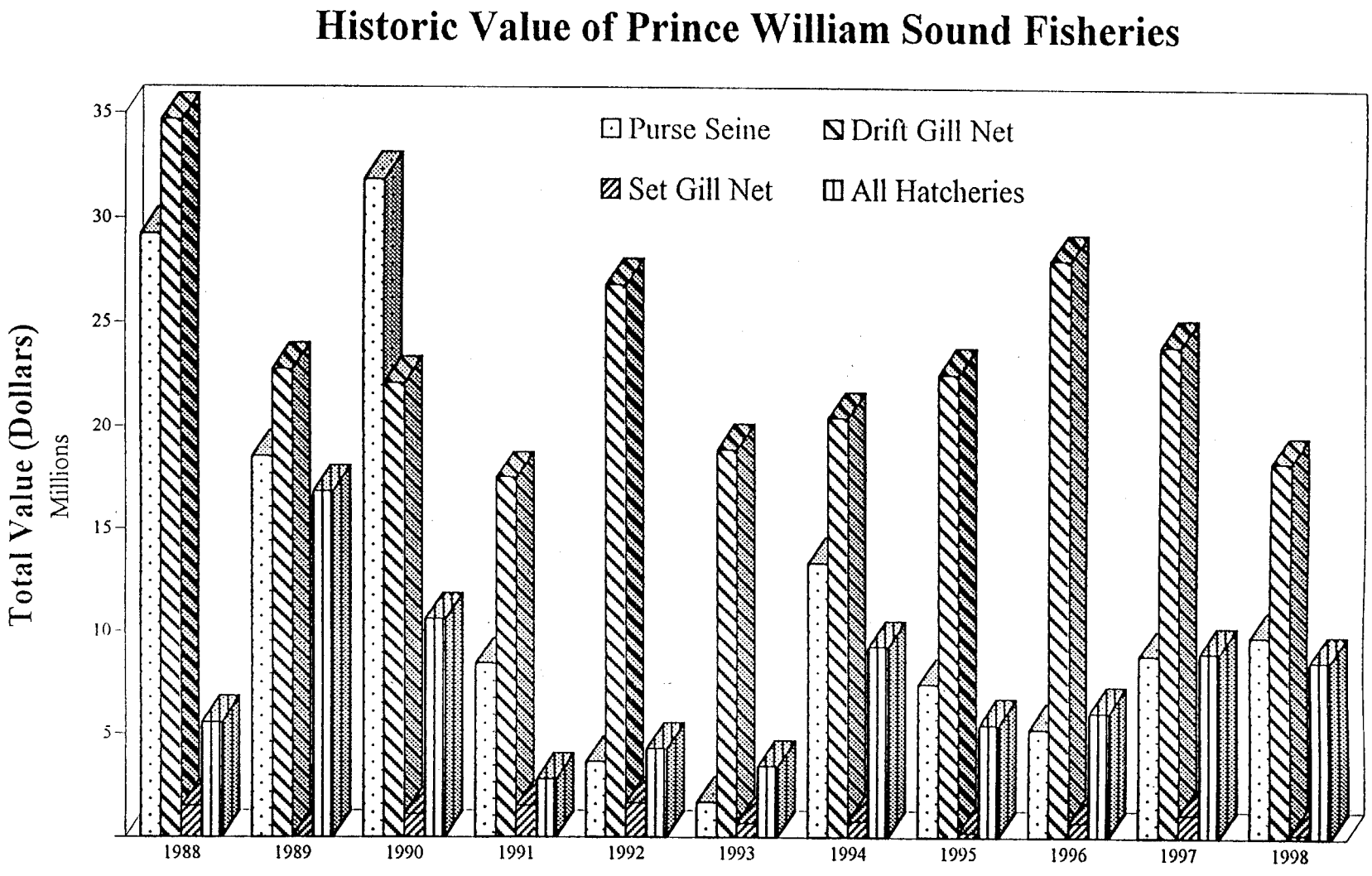
[a] Based on processor reports, fish tickets and other sources. Prices are monitored throughout the season and a weighted average is generally used. Prices generally do not reflect post season adjustments. Prices are only an estimate. Caution should be used if using these prices to estimate value.

Appendix A.8. Estimated exvessel value of the total commercial salmon harvest by gear type, Prince William Sound, 1988 - 98.

PURSE SEINE											
Species	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Chinook	8,307	23,731	2,178	1,732	2,044	379	1,104	1,169	570	3,422	4,386
Sockeye	405,897	128,766	219,753	113,493	313,794	169,236	432,156	205,178	111,337	151,532	127,854
Coho	420,594	389,124	388,516	49,165	277,682	21,288	208,661	327,260	314,773	125,946	124,325
Pink	21,347,949	15,967,454	29,428,887	8,148,452	2,950,733	1,469,531	12,537,403	6,736,581	4,445,231	6,795,323	8,565,392
Chum	7,047,235	2,031,356	1,792,801	107,202	125,639	22,344	164,181	152,047	386,967	1,742,759	950,912
	$29,229,981	$18,540,431	$31,832,135	$8,420,044	$3,669,892	$1,682,778	$13,343,505	$7,422,236	$5,258,878	$8,818,982	$9,772,869
DRIFT GILLNET											
Species											
Chinook	1,852,847	1,866,575	1,269,847	1,310,334	2,504,789	1,180,382	1,534,059	3,573,848	2,259,958	2,367,538	3,341,148
Sockeye	13,771,838	17,853,841	11,452,509	11,817,211	18,901,370	11,767,820	9,209,486	12,864,113	23,037,225	19,796,170	13,223,761
Coho	9,996,147	1,533,704	3,716,774	3,328,387	4,155,833	2,702,999	7,129,685	4,207,678	1,450,095	57,798	379,366
Pink	4,969,494	880,618	1,999,326	104,274	213,996	115,040	127,997	165,462	12,028	83,398	249,293
Chum	4,065,385	617,440	3,643,487	928,104	1,037,032	3,091,611	2,393,837	1,709,831	1,229,842	1,567,526	1,035,808
	$34,655,712	$22,752,177	$22,081,943	$17,488,310	$26,813,021	$18,857,852	$20,395,065	$22,520,932	$27,989,149	$23,872,430	$18,229,376
SET GILLNET											
Species											
Chinook	3,739	0	1,048	1,156	1,973	848	121	182	148	159	25
Sockeye	328,818	0	100,106	1,300,375	1,355,943	517,182	638,164	181,653	697,572	1,055,286	177,723
Coho	2,678	0	2,859	1,625	8,321	4,343	3,513	2,003	612	340	336
Pink	391,877	0	370,015	7,587	248,170	48,618	117,298	18,892	2,373	20,477	16,659
Chum	766,057	0	635,185	191,271	22,316	97,911	18,675	21,018	11,312	17,242	337
	$1,493,169	$0	$1,109,214	$1,502,013	$1,636,724	$668,901	$777,770	$223,747	$712,017	$1,093,504	$195,079
HATCHERY SALES											
Species											
Chinook	0	0	0	0	27,218	26,736	11,526	11,692	91	1,252	22,621
Sockeye	0	0	451	0	1,573,671	371,621	358,077	380,378	444,198	1,381,948	953,857
Coho	107,042	141,632	79,481	216,146	352,390	11,712	82,571	28,759	100,413	7,090	63,980
Pink	5,180,820	16,119,012	10,443,198	2,573,773	2,196,778	1,472,128	7,222,015	4,157,847	4,076,578	5,814,214	6,283,525
Chum	251,225	552,999	101,985	14,609	157,616	1,576,882	1,598,524	895,509	1,430,814	1,758,276	1,261,354
	$5,539,087	$16,813,643	$10,625,115	$2,804,528	$4,307,673	$3,459,882	$9,272,731	$5,474,186	$6,052,094	$8,965,780	$8,585,338
OTHER GEAR											
Species											
Chinook	45	1,319	2,062	3,699	143	154	143	25	76	0	5,004
Sockeye	670	40,471	10,095	9,638	80,141	52,272	3,686	27,880	2,582	2,085	2,085
Coho	1,450	5,056	3,513	2,967	5,293	751	89	479	0	0	10
Pink	59,862	73,675	12,746	7,971	2,066	9,084	28,287	88,152	0	1	271
Chum	9,965	11,890	15,467	1,718	13,389	16,066	35,139	4,234	1	190	13
	$71,992	$132,860	$43,883	$25,993	$101,031	$78,327	$67,344	$120,771	$2,659	$2,276	$7,383

AVERAGE EARNINGS	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Purse Seine	$114,627	$76,298	$119,670	$33,281	$17,729	$11,686	$78,032	$39,691	$58,432	$77,359	$65,590
Drift Gillnet	$65,885	$46,623	$42,141	$33,696	$50,782	$36,688	$39,990	$43,477	$54,989	$45,909	$34,922
Set Gillnet	$53,327	$0	$38,249	$51,794	$54,557	$22,297	$29,914	$8,606	$26,371	$42,058	$12,192

NUMBER OF PERMITS FISHED											
Purse Seine	255	243	266	253	207	144	171	187	90	114	149
Drift Gillnet	526	488	524	519	528	514	510	518	509	520	522
Set Gillnet	28	0	29	29	30	30	26	26	27	26	16



Appendix A.9. Exvessel value of the commercial salmon harvest by gear type, 1988 - 98.

Appendix A.10. Preseason harvest projections for the 1998 commercial salmon fishery by district and species, Prince William Sound Area.

	COMMERCIAL HARVEST (1,000's of fish)									
	Chinook		Sockeye		Coho		Pink		Chum	
District [a]	Point Estimate	Range	Point Estimate	Range	Point Estimate	Range	Point Estimate	Range	Point Estimate	Range
Copper River [b]	49.9	29.6 -70.1	1,850.0	1,000.0 - 2,690.0	317.3	79.1 - 555.5				
Bering River [c]					135.1	0.0 - 288.7				
Coghill [d]			32.4	0.0 - 111.7						
Eshamy [e]			23.9	0.0 - 150.3						
General P.W.S. Districts			10.7	8.1 - 13.4			4,500.0	100.0 - 21,900.0	10.0	0.0 - 380.0
Total Wild Stock	49.9	29.6 -70.1	67.0	8.1 - 275.4	452.4	79.1 - 844.2	4,500.0	100.0 - 21,900.0	10.0	0.0 - 380.0
Solomon Gulch					79.5	60.0 - 99.1	1,600.0	0.0 - 5,700.0	60.0	30.0 - 80.0
Armin F. Koernig							100.0	0.0 - 500.0	530.0	160.0 - 1,520.0
Wally Noerenberg [f]					14.1	10.8 - 17.4	2,400.0	0.0 - 4,000.0		
Cannery Creek							2,400.0	500.0 - 4,100.0		
Main Bay [g]										
Gulkana			290.0	160.0 - 430.0						
Total Hatchery			290.0	160.0 - 430.0	93.7	71.1 - 116.5	6,500.0	500 - 14,300	590.0	190.0 - 1,600.0
Total Hatchery and Wild	49.9	29.6 -70.1	357.0	168.1 - 705.4	546.1	150.2 - 1010.7	11,000.00	600.0 - 36,200.0	600.0	190.0 - 1,980.0

[a] Formal forecast procedures are used for estimating wild stock returns for pink and chum salmon in Prince William Sound. Hatchery contributions are based on known fry releases and average marine survival rates. General P.W.S. sockeye production is based upon average harvest. Harvest estimates are made only for those species which constitute a significant portion of the catch. The harvest projections do not include salmon projected for harvest by hatcheries for cost recovery.

[b] Formalized forecast procedures are used for Copper River chinook and sockeye returns. Copper River coho catches are based on mean annual harvest.

[c] Bering River coho harvest estimates are based on mean annual harvest.

[d] Coghill sockeye returns are formally forecast using a sibling relationship model for the major age class and spawner recruit relationships for other age classes. The Coghill District's wild pink and chum harvest is included in the "General PWS Districts" projection.

[e] No formal forecast exists for Eshamy sockeye production. The pink and chum harvest is included in the "General PWS Districts"projection.

[f] WHN chum harvest estimate includes all on site and remote returns of chum salmon.

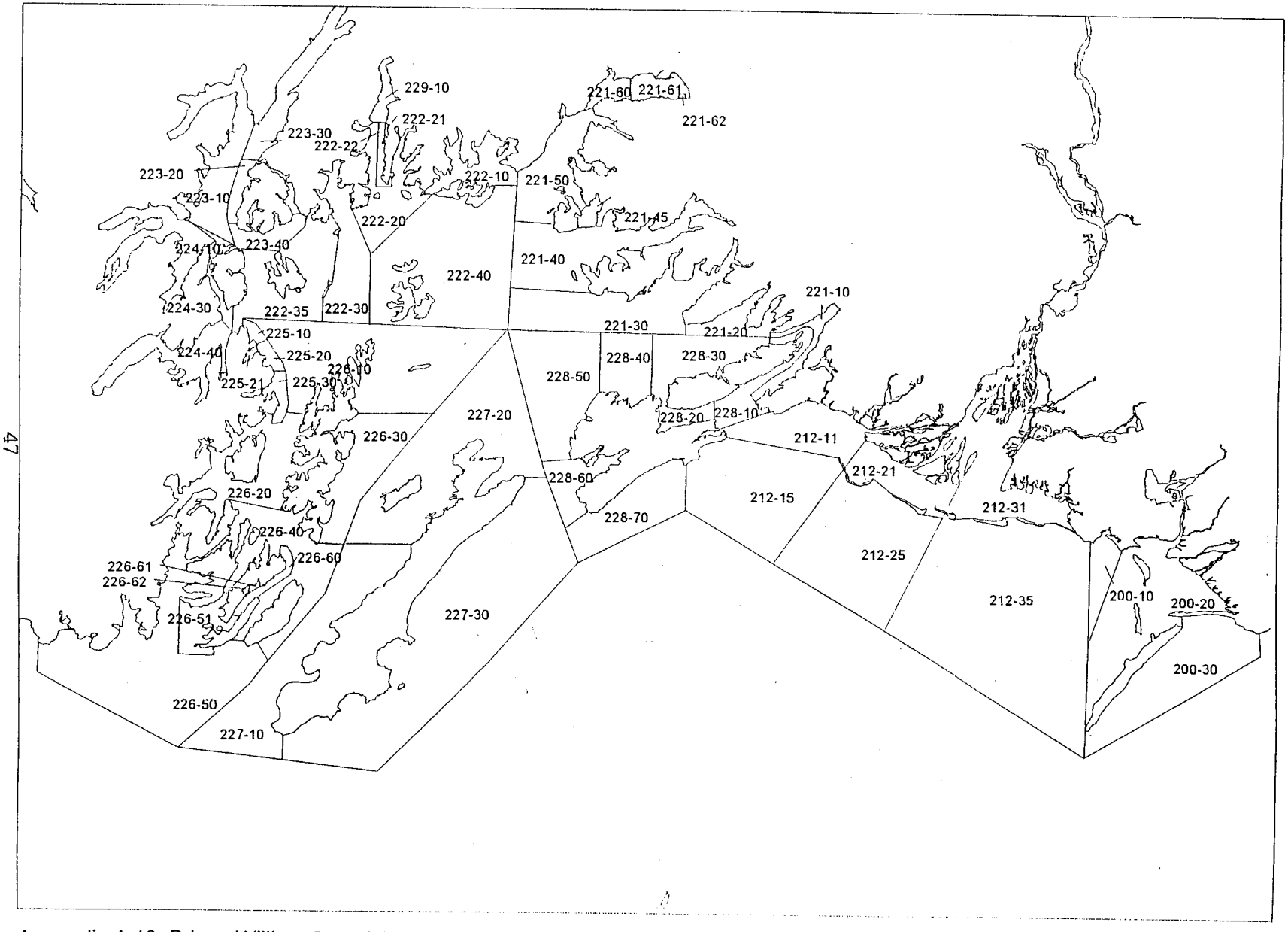
[g] Main Bay sockeye harvest estimate includes all on site and remote returns of sockeye salmon.

Appendix A11. A listing of finfish processors, their location of operation, and type of product processed, Prince Willam Sound Area, 1998.

Executive Names, Address Location of Operations	Processor Code	Type of Product	Executive Names, Address Location of Operations	Processor Code	Type of Product
Anchor Services Unlimited P.O. Box 606 Whittier, AK 99693 Paul McMullin	F3534	Salmon	Janda II P.O. Box 1268 Cordova, AK 99574 Kurt Goetzinger	F3433	Salmon
Cannery Row, Inc. P.O. Box 120 Cordova, Alaska 99574 Greg Meyer	F1673	Herring	Low Water Clam Company P.O. Box 2232 Cordova, Alaska 99574 Mitchell Nowicki	F0010	Salmon
Cook Inlet Processing P.O. Box 8163 Nikiski, Alaska 99635 John Dickerson	F0186 F2448	Salmon Herring	Nautilus Foods P.O. Box 727 Valdez, Alaska 99686 Tom Waterer	F2003	Salmon
Copper River Fine Seafoods P.O. Box 158 Cordova, AK 99574 Robyn Wamser	F2977	Salmon	New West Fish 601 W. Chestnut Bellingham, WA Jerry Thon	F0602	Herring
Dragnet Fisheries Co., Inc. P.O. Box 1260 Kenai, AK 99611 Don Stuart	F0030	Herring	Norquest Seafoods P.O. Box 260 Cordova, AK 99574 Bill Gilbert	F1484 F1486	Salmon Herring
Flopping Fresh P.O. Box 572 Bellingham, WA	F3265	Salmon	North Alaska Fisheries P.O. Box 92737 Anchorage, AK 99509 Jack Schultheis	F1681	Salmon Herring
Flyin Finn P.O. Box 2162 Cordova, AK 99574 Melvin Sary	F1845	Salmon	North Pacific Processors, Inc. P.O. Box 1040 Cordova, Alaska 99574 Ken Roemhildt	F0232	Salmon Herring
Glacier Creek Seafoods H.C. 52 Box 8610 Bird Creek, AK 99540 Steve Aberle	F1826	Salmon	Northern Victor Partnership 4209 21st West, Suite 402 Seattle, WA 98199 Peter Kuttel	F1319	Salmon
Glacier Fish P.O. Box 1989 Seward, AK Keith Bailey	F1979	Salmon	Ocean Beauty Seafoods P.O. Box 548 Cordova, AK 99574 Hap Symmonds	F1930	Salmon Herring
Great Pacific Seafoods, Inc. P.O. Box 710 Whittier, AK 99693 Nancy Davidson	F1989 F1267	Salmon	Peter Pan Seafoods, Inc. P.O. Box 1027 Valdez, Alaska 99686 James Poor	F1041	Salmon
Icicle Seafoods Inc. P.O. Box 8 Seward, Alaska 99664 Tim Schmidt	F0133 F0134 F0135 F0137	Salmon Herring	Potter's Own Fine Fish P.O. Box 1472 Cordova, AK 99574 Lynn and Carol Potter	F3346	Salmon
Inlet Fisheries P.O. Box 530 Kenai, Alaska 99611 Scott Earsley	F1039	Salmon	Prime Select Seafoods, Inc. P.O. Box 846 Cordova, Alaska 99574 Jeff Bailey	F1816	Salmon

Appendix A.11. (page 2 of 2)

Executive Names, Address Location of Operations	Processor Code	Type of Product	Executive Names, Address Location of Operations	Processor Code	Type of Product
Prince William Sound Aquaculture P.O. Box 1110 Cordova, Alaska 99574 Monica Bradley	F1901,F1903 F2465 F2902 F3468	Salmon Salmon roe	Winter King P.O. Box 1268 Cordova, AK 99574 Ralph Lohse	F3503	Salmon
Sahalee of Alaska, Inc. P.O. Box 104174 Anchorage, Alaska 99510 William Lind	F1485	Salmon	Woodbine Alaska Fish Company P.O. Box 218 Egagik, Alaska 99633	F0214	Herring
Sea Hawk Seafoods P.O. Box 247 Valdez, AK 99686 Joe Haugsven	F0223	Salmon	Valdez Fisheries Development P.O. Box 125 Valdez, Alaska 99686 Dave Cobb/Laura Weaver	F1355	Salmon Salmon roe
Wild Card Inc. P.O. Box 1871 Cordova, AK 99574 Lisa Walters	F1822	Salmon			



Appendix A.12. Prince William Sound Area showing commercial fishing districts and statistical reporting areas, 1998.

APPENDIX B: COPPER AND BERING RIVER DISTRICTS

Appendix B.1. Commercial salmon catch by species in the Copper River District, 1974-1998.

Year	Catch by Species					Total
	Chinook	Sockeye	Coho	Pink	Chum	
1974	18,980	607,766	46,625	9,839	664	683,874
1975	19,644	335,384	53,805	236	807	409,876
1976	31,479	865,195	111,900	3,392	178	1,012,144
1977	21,722	602,737	131,356	23,185	335	779,335
1978	29,062	249,872	220,338	3,512	2,233	505,017
1979	17,678	80,528	194,885	1,295	107	294,493
1980	8,454	18,908	225,299	3,966	198	256,825
1981	20,178	477,662	310,154	23,952	1,799	833,745
1982	47,362	1,177,632	454,763	7,154	1,177	1,688,088
1983	52,500	626,735	234,243	7,345	2,217	923,040
1984	38,957	900,043	382,432	32,194	6,935	1,360,561
1985	42,214	927,553	587,990	19,061	5,966	1,582,784
1986	40,670	780,808	295,980	3,016	17,614	1,138,088
1987	41,001	1,180,782	111,599	31,635	14,796	1,379,813
1988	30,741	576,950	315,568	2,775	11,022	937,056
1989	30,863	1,025,923	194,454	25,877	5,845	1,282,962
1990	21,702	844,778	246,797	1,596	7,545	1,122,418
1991	34,787	1,206,811	385,086	1,246	20,220	1,648,150
1992	39,810	970,938	291,627	1,664	5,807	1,309,846
1993	29,727	1,398,234	281,469	9,579	13,002	1,732,011
1994	47,061	1,152,220	677,633	12,079	19,055	1,908,048
1995	65,675	1,271,822	542,658	19,809	56,100	1,956,064
1996	55,646	2,356,365	193,042	6,372	25,533	2,636,958
1997	51,273	2,955,431	18,656	8,483	2,465	3,036,308
1998	68,827	1,341,692	108,232	20,829	5,022	1,544,602
Ten Year Average (1988-97)	40,729	1,375,947	314,699	8,948	16,659	1,756,982
1999						
2000	32,030	883,646	305,707	9536	5259	

Appendix B.2 Anticipated and actual weekly catch and escapement of sockeye salmon in the Copper River District drift gillnet fishery, 1998.

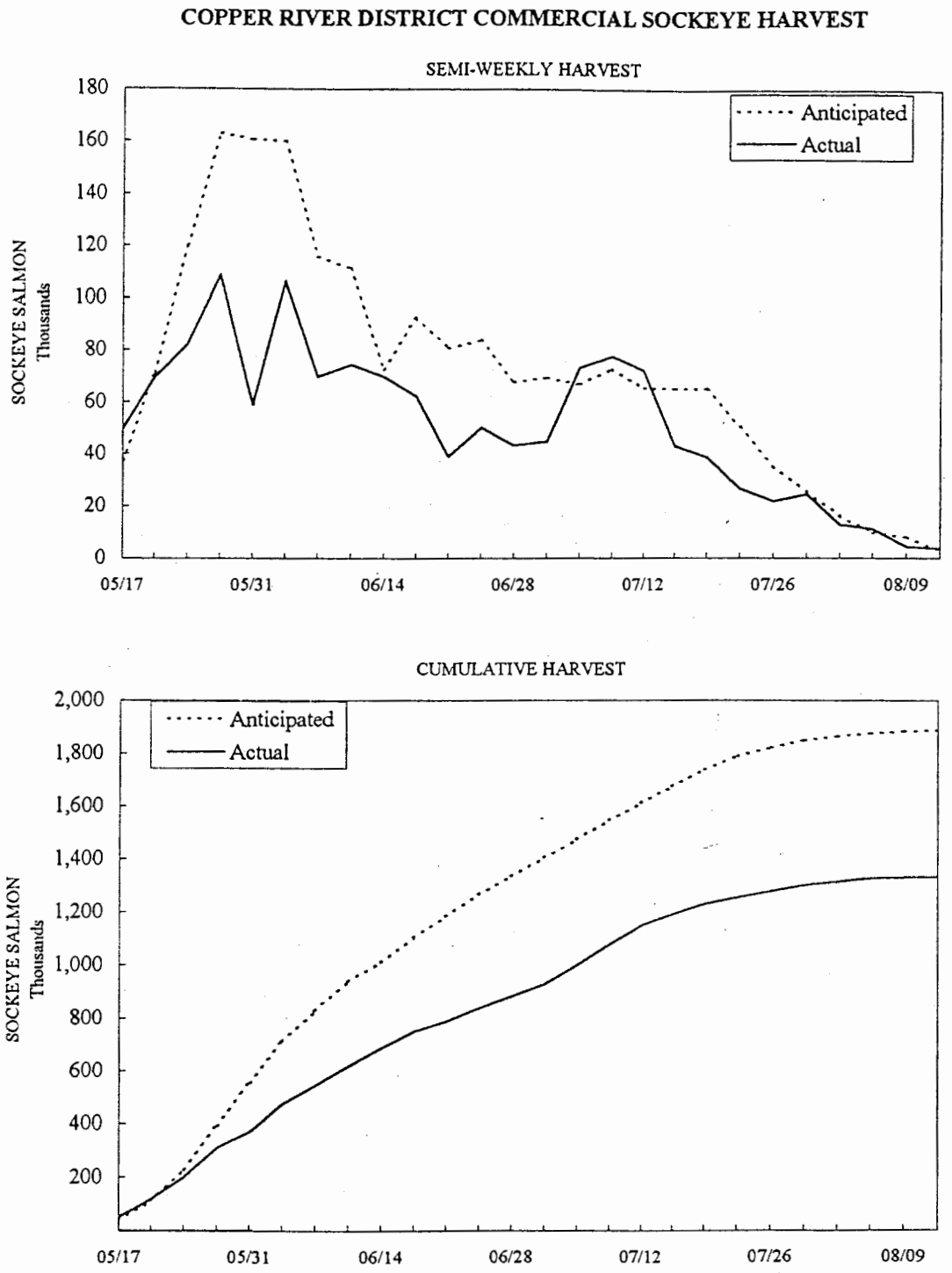
Semi-Weekly Date	Fishing Time (Hrs.)	Actual Catch	Anticipated Catch [a]	Anticipated Cumulative Escapement [b]	Actual Cumulative Escapement [c]
05/16	24	49,591	37,183	112	
05/20	24	69,498	71,099	9,464	
05/23	12	82,115	119,864	18,867	
05/27	12	108,893	163,179	46,041	28,718
05/30	24	58,634	160,546	70,112	68,661
06/03	24	106,437	159,902	113,593	162,921
06/06	24	69,503	115,963	151,068	221,645
06/10	24	74,142	111,230	201,672	271,784
06/13	24	69,629	72,361	236,517	329,654
06/17	24	62,051	92,448	277,957	416,826
06/20	24	39,022	80,549	301,217	458,479
06/24	24	50,202	83,864	331,102	505,971
06/27	12	43,211	67,588	352,763	540,911
07/01	12	44,728	69,234	380,981	597,911
07/04	24	73,072	66,774	403,712	628,928
07/08	24	77,331	72,448	434,597	666,678
07/11	36	71,896	65,039	460,693	709,329
07/15	36	42,873	64,651	493,514	762,214
07/18	36	38,535	64,610	516,046	785,359
07/22	36	26,565	50,064	544,805	813,613
07/25	36	21,744	35,133	560,577	829,700
07/29	36	24,605	25,464	579,354	845,291
08/01	36	12,778	16,158	591,665	858,489
08/05	36	11,017	9,844	602,468	866,957 [d]
08/08	36	4,582	8,133		
08/12	24	3,596	2,932		
08/15	24	2,345			
Season Total	708	1,341,692	1,886,260	612,000	

[a] Based on average historic catches for comparable dates (1992-1997).

[b] Based on historical escapements at Miles Lake sonar, includes upriver chinook escapement component and sockeye broodstock for the Gulkana Hatchery. Does not include sockeye escapements for the Copper/Bering delta streams.

[c] Escapement estimate from sonar counters at Miles Lake.

[d] Miles Lake sonar operation ended August 4.



Appendix B.3. Anticipated versus actual semi-weekly and cumulative harvest of sockeye salmon in the Copper River drift gillnet fishery, 1998.

Appendix B.4. Commercial salmon harvest by period in the Copper District drift gillnet fishery, 1998.

Period	Date [a,b]	Hours	Permits	Landing	Chinook		Sockeye		Coho		Pink		Chum	
					Number	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds
01	14-May	24	484	698	12,173	262,862	49,591	287,712	1	11	0		82	609
02	18-May	24	437	545	11,892	260,229	69,498	400,817	0	0	0		26	175
03	22-May	12	441	550	10,754	237,835	82,115	479,077	0	0	0		47	341
04	25-May	12	504	702	8,624	193,945	108,893	635,118	0	0	0		7	53
05	28-May	24	501	750	6,224	140,373	58,634	342,928	1	6	0		37	279
06	1-Jun	24	505	797	5,984	138,374	106,437	626,859	3	25	0		491	3,471
07	4-Jun	24	484	676	4,353	103,643	69,503	412,304	0	0	0		382	2,668
08	8-Jun	24	365	575	3,661	91,121	74,142	442,694	1	7	0		1,136	7,677
09	11-Jun	24	398	546	1,995	49,344	69,629	416,724	3	17	0		616	4,032
10	15-Jun	24	302	429	1,518	37,759	62,051	371,599	1	8	0		54	415
11	18-Jun	24	250	343	813	19,700	39,022	234,809	0	0	0		32	261
12	22-Jun	24	245	362	422	11,055	50,202	304,468	10	59	3	15	419	2,979
13	26-Jun	12	254	308	96	2,442	43,211	261,255	3	26	6	26	12	90
14	29-Jun	12	333	365	105	2,489	44,728	268,269	44	301	34	125	51	339
15	2-Jul	24	353	486	65	1,399	73,072	443,478	202	1,571	95	414	198	1,560
16	6-Jul	24	320	479	29	624	77,331	468,734	317	2,278	182	728	167	1,281
17	9-Jul	36	364	599	48	848	71,896	432,585	623	4,581	166	668	128	988
18	13-Jul	36	365	528	25	478	42,873	256,063	3,392	25,919	1,087	4,477	283	2,283
19	16-Jul	36	324	456	17	244	38,535	231,637	3,980	29,889	2,382	9,575	295	2,456
20	20-Jul	36	199	264	6	92	26,565	159,716	731	5,361	824	3,177	49	358
21	23-Jul	36	203	259	4	65	21,744	130,709	2,509	17,975	1,285	5,034	222	1,613
22	27-Jul	36	182	256	3	64	24,605	150,548	5,783	42,745	2,208	8,582	64	519
23	30-Jul	36	165	202	3	67	12,778	79,016	4,578	35,721	4,459	17,951	75	590
24	3-Aug	36	150	203	3	49	11,017	68,352	7,461	61,442	6,082	24,079	65	525
25	6-Aug	36	111	131	2	12	4,582	28,444	7,795	65,114	1,433	5,711	20	159
26	10-Aug	24	207	269	7	95	3,596	22,520	17,490	162,181	399	1,660	36	269
27	13-Aug	24	244	308	1	15	2,345	14,847	17,256	152,819	100	364	11	82
28	17-Aug	24	261	335	0	0	1,879	12,053	19,240	180,318	56	218	10	78
29	20-Aug	24	224	285	0	0	1,218	7,747	16,808	159,015	28	102	7	54
Total		756	516	12,706	68,827	1,555,223	1,341,692	7,991,082	108,232	947,389	20,829	82,906	5,022	36,204
Average Weight						22.60		5.96		8.75		3.98		7.21

[a] Starting date of period.

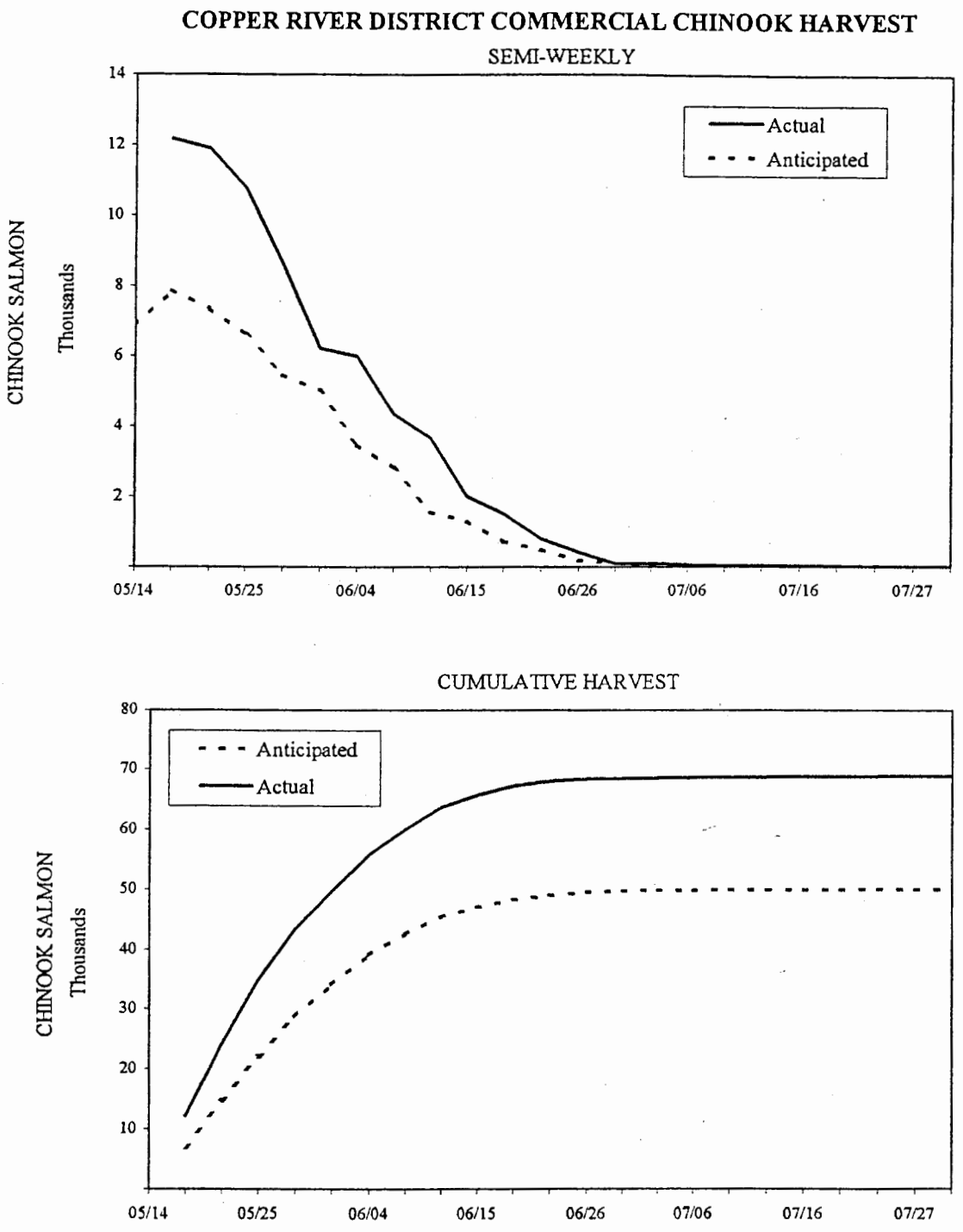
[b] From 5/15- 8/07 all 24-hour periods started at either 7:00 a.m. or 7:00 p.m. all 12-hour periods began at 7:00 a.m. After August 7 periods began at 12:00 noon.

Appendix B.5. Anticipated and actual weekly catch of chinook and coho salmon in the Copper River District drift gillnet fishery, 1998.

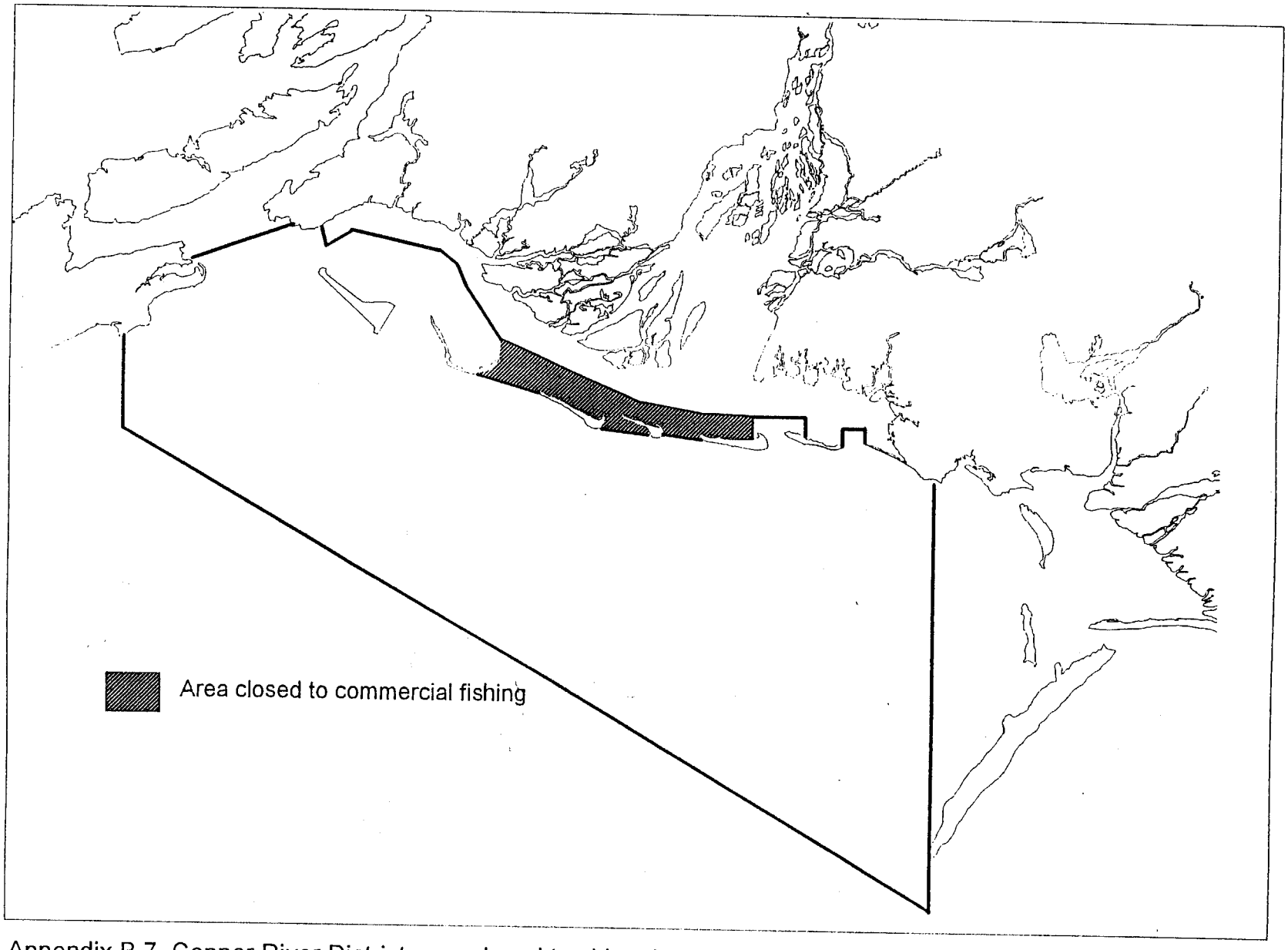
Week Ending Date	Length of Fishing Periods (Hrs)	Chinook Actual Catch	Chinook Anticipated Catch [a]	Coho Actual Catch	Coho Anticipated Catch [a]
May 16	24	12,173	6,857	1	
May 23	24 and 12	22,646	15,210		
May 30	12 and 24	14,848	12,077	1	
June 06	24 and 24	10,341	8,485	3	
June 13	24 and 24	5,656	4,362	4	
June 20	24 and 24	2,331	2,032	1	
June 27	24 and 12	518	693	13	
July 04	12 and 24	170	150	246	
July 11	24 and 36	77	53	899	
July 18	36 and 36	44	42	7,219	2,218 [b]
July 25	36 and 36	10	18	3,330	1,612
Aug. 01	36 and 36	7	7	10,737	3,757
Aug. 08	36 and 36	5		15,730	12,094
Aug. 15	24 and 24	8		35,040	25,934
Aug. 22	24 and 24			36,247	49,080
Aug. 29					65,401
Sept. 05					70,444
Sept. 12					51,231
Sept. 19					21,684
Sept. 26					11,017
Oct. 03					
Oct. 10					
Season Total		68,834	49,986	109,471	314,472

[a] Based on average historic catches for comparable dates (1969 - 1993).

[b] The anticipated cumulative harvest through July 18.



Appendix B.6. Anticipated versus actual semi-weekly and cumulative harvest of chinook salmon in the Copper River drift gillnet fishery, 1998.



Appendix B.7. Copper River District area closed to chinook salmon harvest during the first fishing period, 1998.

Appendix B.8. Daily sockeye salmon escapement estimates at Miles Lake sonar, 1998.

		Estimated Daily Escapement				Escapement Objective			
Date	Water Level [a]	North Bank	South Bank	Daily	Cumulative	Daily	Cumulative	0600 Count	Projected Daily
15-May									
16-May	38.76					112	112		
17-May	38.80					1,397	1,509		
18-May	38.85		158 [b]	158	158	2,141	3,650		
19-May	39.00		254	254	412	2,652	6,302		
20-May	39.06		173	173	585	3,162	9,464		
21-May	39.08		1,477	1,477	2,062	3,001	12,465		
22-May	39.04		1,277	1,277	3,339	3,051	15,516		
23-May	39.09		1,327	1,327	4,666	3,351	18,867		
24-May	39.13		3,582	3,582	8,248	5,816	24,683		
25-May	39.16		5,851	5,851	14,099	5,704	30,387		
26-May	39.28		5,608	5,608	19,707	7,312	37,699		
27-May	39.58		9,011	9,011	28,718	8,342	46,041		
28-May	39.91		10,275	10,275	38,993	9,378	55,419		
29-May	40.26		11,226	11,226	50,219	7,276	62,695		
30-May	40.64		18,442	18,442	68,661	7,417	70,112		
31-May	41.09		23,018	23,018	91,679	10,699	80,811		
01-Jun	41.27		21,312 [d]	21,312	112,991	10,441	91,252	6,058	24,232
02-Jun	41.25		24,206	24,206	137,197	11,496	102,748	4,649	18,596
03-Jun	41.21		25,724	25,724	162,921	10,845	113,593	7,453	29,812
04-Jun	41.42		25,530	25,530	188,451	11,655	125,248	6,236	24,944
05-Jun	41.45	56 [c]	19,008	19,064	207,515	13,945	139,193	5,151	20,604
06-Jun	41.55	137	13,993	14,130	221,645	11,875	151,068	3,617	14,468
07-Jun	41.54	196	18,405	18,601	240,246	11,625	162,693	4,736	18,944
08-Jun	41.96	173	13,546	13,719	253,965	13,414	176,107	4,934	19,736
09-Jun	42.50	270	7,055	7,325	261,290	12,831	188,938	2,249	8,996
10-Jun	42.86	360	10,134	10,494	271,784	12,734	201,672	1,979	7,916
11-Jun	42.63	484	17,987	18,471	290,255	12,584	214,256	3,954	15,816
12-Jun	42.25	1,043	16,638	17,681	307,936	11,986	226,242	3,659	14,636
13-Jun	41.89	629	21,089	21,718	329,654	10,275	236,517	2,384	9,536
14-Jun	41.71	437	27,844	28,281	357,935	9,757	246,274	7,196	28,784
15-Jun	41.65	382	20,487	20,869	378,804	11,823	258,097	7,012	28,048
16-Jun	41.72	258	17,003	17,261	396,065	9,986	268,083	3,717	14,868
17-Jun	41.82	542	20,219	20,761	416,826	9,874	277,957	4,793	19,172
18-Jun	41.96	418	18,117	18,535	435,361	8,352	286,309	4,511	18,044
19-Jun	42.08	379	11,239	11,618	446,979	7,695	294,004	2,955	11,820
20-Jun	42.24	403	11,097	11,500	458,479	7,213	301,217	2,646	10,584
21-Jun	42.21	394	11,882	12,276	470,755	7,276	308,493	2,402	9,608
22-Jun	42.25	277	10,511	10,788	481,543	7,362	315,855	3,149	12,596
23-Jun	42.27	292	10,615	10,907	492,450	7,974	323,829	1,806	7,224
24-Jun	42.19	570	12,951	13,521	505,971	7,273	331,102	2,193	8,772
25-Jun	42.12	383	12,618	13,001	518,972	7,896	338,998	2,523	10,092
26-Jun	42.25	249	10,968	11,217	530,189	6,908	345,906	3,056	12,224
27-Jun	42.37	294	10,428	10,722	540,911	6,857	352,763	2,048	8,192
28-Jun	42.38	209	12,613	12,822	553,733	6,574	359,337	2,418	9,672
29-Jun	42.40	414	15,437	15,851	569,584	7,196	366,533	3,646	14,584
30-Jun	42.46	246	14,435	14,681	584,265	7,863	374,396	3,847	15,388

-Continued-

Appendix B.8. (page 2 of 2)

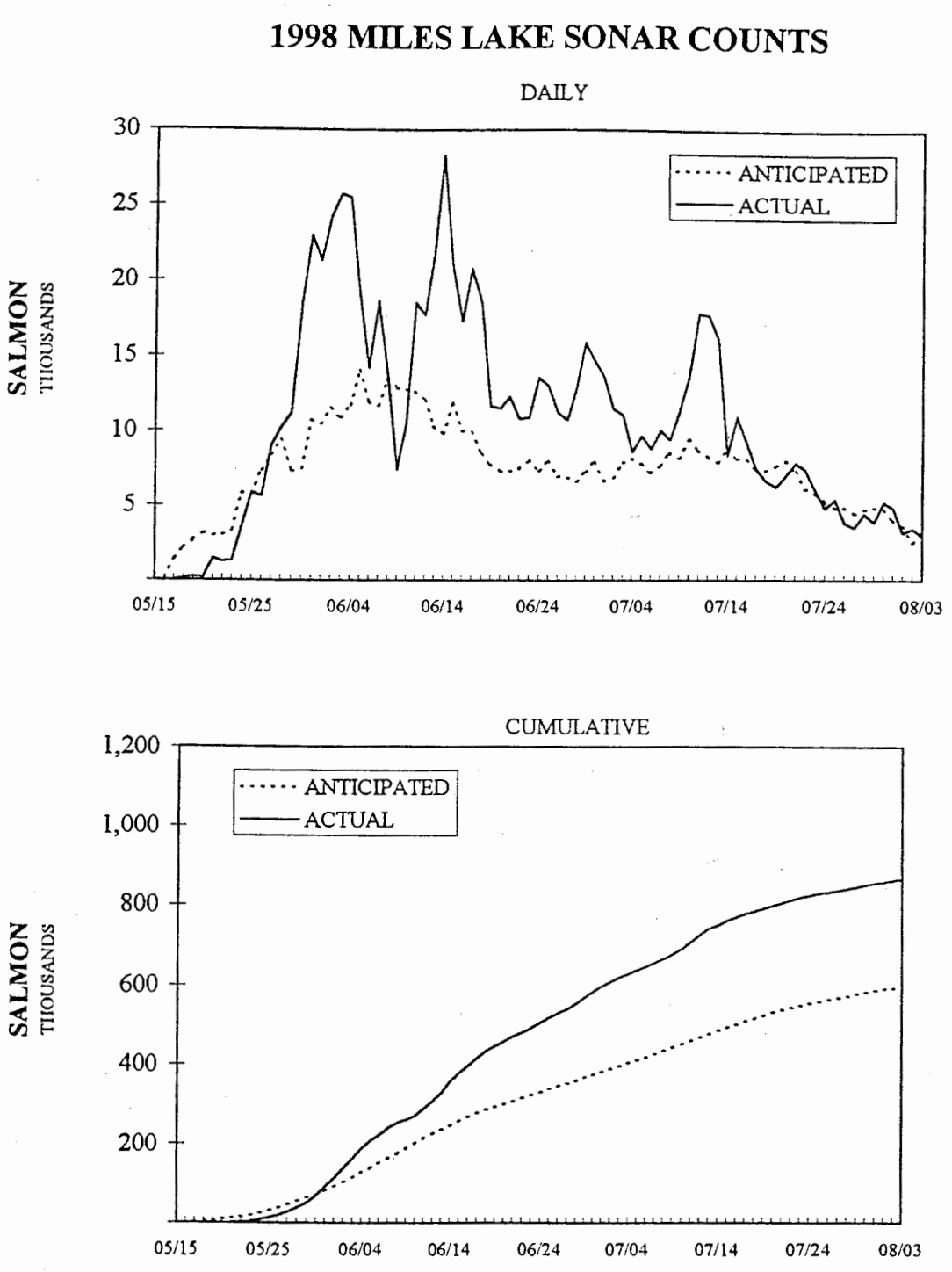
Date	Water Level [a]	Estimate North Bank	Estimate South Bank	Daily	Cumulative	Escapement Objective Daily	Escapement Objective Cumulative	0600 Count	Projected Daily
01-Jul	42.65	272	13,374	13,646	597,911	6,585	380,981	3,189	12,756
02-Jul	42.90	259	11,173	11,432	609,343	6,812	387,793	4,203	16,812
03-Jul	43.16	110	10,926	11,036	620,379	7,804	395,597	2,347	9,388
04-Jul	43.36	291	8,258	8,549	628,928	8,115	403,712	2,410	9,640
05-Jul	43.44	385	9,240	9,625	638,553	7,700	411,412	1,611	6,444
06-Jul	43.48	861	7,896	8,757	647,310	7,081	418,493	1,226	4,904
07-Jul	43.47	504	9,514	10,018	657,328	7,630	426,123	2,808	11,232
08-Jul	43.31	664	8,686	9,350	666,678	8,474	434,597	1,970	7,880
09-Jul	42.87	201	11,106	11,307	677,985	8,073	442,670	2,735	10,940
10-Jul	42.53	296	13,266	13,562	691,547	9,384	452,054	3,152	12,608
11-Jul	42.43	539	17,243	17,782	709,329	8,639	460,693	3,967	15,868
12-Jul	42.63	604	17,057	17,661	726,990	8,240	468,933	3,860	15,440
13-Jul	42.62	460	15,619	16,079	743,069	7,828	476,761	4,237	16,948
14-Jul	42.58	295	7,968	8,263	751,332	8,695	485,456	2,120	8,480
15-Jul	42.65	418	10,464	10,882	762,214	8,058	493,514	2,024	8,096
16-Jul	42.60	439	8,745	9,184	771,398	7,947	501,461	2,201	8,804
17-Jul	42.66	395	6,983	7,378	778,776	7,322	508,783	1,428	5,712
18-Jul	42.61	335	6,248	6,583	785,359	7,263	516,046	1,471	5,884
19-Jul	42.51	472	5,711	6,183	791,542	7,596	523,642	1,338	5,352
20-Jul	41.78	727	6,207	6,934	798,476	7,902	531,544	1,495	5,980
21-Jul	42.33	587	7,203	7,790	806,266	7,204	538,748	1,661	6,644
22-Jul	42.44	466	6,881	7,347	813,613	6,057	544,805	2,622	10,488
23-Jul	42.42	270	5,683	5,953	819,566	5,779	550,584	1,691	6,764
24-Jul	42.33	203	4,565	4,768	824,334	5,212	555,796	976	3,904
25-Jul	42.17	352	5,014	5,366	829,700	4,781	560,577	1,195	4,780
26-Jul	42.28	374	3,432	3,806	833,506	4,843	565,420	1,168	4,672
27-Jul	42.36	661	2,851	3,512	837,018	4,391	569,811	758	3,032
28-Jul	42.31	569	3,861	4,430	841,448	4,706	574,517	954	3,816
29-Jul	42.18	234	3,609	3,843	845,291	4,837	579,354	743	2,972
30-Jul	42.18	296	4,903	5,199	850,490	4,650	584,004	1,337	5,348
31-Jul	42.15	97	4,713	4,810	855,300	4,041	588,045	1,058	4,232
01-Aug	42.28	164	3,025	3,189	858,489	3,620	591,665	804	3,216
02-Aug	42.35	91	3,399	3,490	861,979	3,093	594,758	707	2,828
03-Aug	42.38	81	2,893	2,974	864,953	2,574	597,332	942	3,768
04-Aug	42.16		2,004	2,004	866,957	2,476	599,808	191	764

[a] Meters above sea level.

[b] South bank transducer was deployed on the tripod

[c] North bank tripod was deployed.

[d] South bank transducer was deployed on the permanent substrate at midnight.



Appendix B.9. Anticipated versus actual daily and cumulative salmon escapement, Miles Lake sonar, 1998.

Appendix B.10. Aerial escapement indices by date and location for sockeye salmon returning to the Copper River Delta, 1998.

Copper River Delta [a] System and Drainage	Survey System	Aerial Escapement Indices by Survey Date						
		June 1	June 15	June 18	June 22	June 26	June 30	July 7
Eyak River	Eyak River	NC	NC	NC	NC	NC	NC	800
	West Shore Beaches	0	0	100	100	200	600	1,000
	East Shore Beaches	NC	NC	NC	NC	800	1,400	1,600
	Middle Arm Beaches [b]	150	500	500	500	300	400	600
	North Shore Beaches	NC	NC	NC	NC	NC	NC	NC
	Hatchery Creek Delta	NC	100	100	NC	NC	NC	300
	Hatchery Creek	NC	0	0	NC	NC	200	400
	Power Creek Delta	NS	0	0	NC	NC	NC	NC
	Power Creek	NS	NS	NS	NS	NS	NS	NS
Ibek Creek	Ibek Creek	NS	NS	NS	NS	NS	NS	NS
Alaganik Slough	Alaganik Slough	NC	NS	NS	NS	NS	NS	NS
	McKinley Lake	0	200	200	0	2,200	5,500	9,600
	Salmon Creek West Fork	NS	0	0	0	0	0	0
	Salmon Creek East Fork	NS	NS	NS	NS	0	0	0
26/27 Mile Creek	26/27 Mile Creek	0	150	150	200	400	700	1,050
39 Mile Creek	39 Mile Creek	0	50	50	0	NC	1,100	NC
Goat Mountain	Goat Mountain Creek	0	NC	NC	NC	NC	NC	NC
Pleasant Creek	Pleasant Creek	0	450	300	550	1,300	2,600	800
Martin River	Martin River - Lower	NC	240	230	570	630	1,050	1,300
	Ragged Point River	0	NS	0	0	0	0	0
	Ragged Point Lake Outlet	NS	NS	NS	NS	NS	NS	NS
	Ragged Point Lake	NS	NS	NS	NS	NS	NS	NS
	Martin River - Upper [b]	60	500	500	1,600	800	1,400	800
	Martin Lake Outlet	20	600	1,250	2,600	800	400	200
	Martin Lake	20	3,650	3,900	3,400	6,500	9,800	6,500
	Martin Lake Feeders	NS	NS	0	100	200	500	4,000
	Pothole River	NS	NS	NS	NS	0	100	700
	Pothole Lake	NS	NS	NS	NS	NS	100	200
	Little Martin River	NS	0	NS	NS	NS	0	400
	Little Martin Lake	NS	0	NS	NS	NS	0	0
Tokun	Tokun Springs	NS	20	50	50	75	100	75
	Tokun River	NS	250	300	300	400	400	800
	Tokun Lake Outlet	NS	700	400	500	3,000	1,200	800
	Tokun Lake	NS	300	1,500	3,700	1,000	4,000	NC
Martin River Slough	Martin River Slough	NS	1,900	1,400	3,330	3,750	4,000	4,900
Copper River Aerial Survey Daily Total		250	9,610	10,930	17,500	22,355	35,550	36,825
Anticipated Escapement		NA	20,765	20,765	25,875	25,875	41,250	28,850

-Continued-

Appendix B.10. (page 2 of 4).

Copper River Delta [a]		Aerial Escapement Indices by Survey Date						
System and Drainage	Survey System	July 12	July 29	August 5	ugust 11	August 18	August 27	Sept. 7
Eyak River	Eyak River	NC	1,500	NC	300 *	300	300	NC
	West Shore Beaches	1,700	5,500	5,000	3,600 *	2,800	1,000	400
	East Shore Beaches	4,200	5,000	4,000	6,700 *	4,800	4,200	NC
	Middle Arm Beaches [b]	2,100	2,700	2,100	4,000 *	4,700	5,800	4,600
	North Shore Beaches	3,000	NC	2,800	1,700 *	NC	NC	NC
	Hatchery Creek Delta	800	2,500	1,500	1,800 *	NC	NS	700
	Hatchery Creek	400	500	1,100	1,500 *	NC	NS	2,700
	Power Creek Delta	1,000	500	1,000	900 *	NC	NS	500
	Power Creek	NS	400	300	600 *	NC	NS	700
Ibek Creek	Ibek Creek	NS	NS	NS	25	NC	NC	NC
Alaganik Slough	Alaganik Slough	NS	NS	NS	NS	NS	NS	NS
	McKinley Lake	11,800	11,300 *	5,300	6,000	1,400	2,500	1,100
	Salmon Creek West Fork	400	1,700 *	5,000	2,900	4,400	3,500	2,800
	Salmon Creek East Fork	0	1,600 *	1,750	2,000	2,100	900	2,700
26/27 Mile Creek	26/27 Mile Creek	1,800 *	900	900	600	600	600	200
39 Mile Creek	39 Mile Creek	5,800	11,500 *	10,000	8,900	9,000	9,400	7,000
Goat Mountain	Goat Mountain Creek	NC	300	NC	NC	NC	NC	NC
Pleasant Creek	Pleasant Creek	1,000 *	420	0	0	0	0	0
Martin River	Martin River - Lower	3,000	700	800	120	200 *	0	NS
	Ragged Point River	0	3,300	2,700	2,600	2,200 *	1,100	NS
	Ragged Point Lake Outlet	NS	100	300	300	500 *	600	NS
	Ragged Point Lake	NS	500	600	1,300	2,100 *	2,100	NS
	Martin River - Upper [b]	2,500 *	1,200	700	600	900	1,100	NC
	Martin Lake Outlet	100 *	100	400	1,300	700	800	NC
	Martin Lake	9,000 *	800	650	1,300	1,200	NC	NC
	Martin Lake Feeders	4,500 *	4,600	2,200	600	200	NS	NS
	Pothole River	1,200 *	350	300	900	1,000	NC	NS
	Pothole Lake	300 *	1,200	300	2,200	2,200	NC	NS
	Little Martin River	50 *	50	0	0	0	0	0
	Little Martin Lake	700 *	1,050	600	600	800	300	300
Tokun	Tokun Springs	100 *	150	NC	150	150	NC	50
	Tokun River	450 *	500	500	1,200	600	350	400
	Tokun Lake Outlet	600 *	200	0	400	0	0	0
	Tokun Lake	7,800 *	4,000	2,200	6,900	3,900	6,000	4,900
Martin River Slough	Martin River Slough	4,700	1,600	1,000	600	150	100	50
Copper River Aerial Survey Daily Total		69,000	66,720	54,000	62,595	46,900	40,650	29,100
Anticipated Escapement		49,050	51,950	42,500	41,500	40,100	31,000	12,400

-Continued-

Appendix B.10. (page 3 of 4).

Copper River Delta [b] System and Drainage	Survey System	Aerial Escapement Indices by Survey Date Sept. 15	Oct. 21	Estimated Escapement Site [c]	System [c]	Anticipated
Eyak River	Eyak River	0	NS	300	21,100	**14,500**
	West Shore Beaches	200	0	3,600		
	East Shore Beaches	2,900	NC	6,700		
	Middle Arm Beaches [b]	2,700	NS	4,000		
	North Shore Beaches	700	NC	1,700		
	Hatchery Creek Delta	1,500	0	1,800		
	Hatchery Creek	1,800	0	1,500		
	Power Creek Delta	200	0	900		
	Power Creek	400	0	600		
Ibek Creek	Ibek Creek	0	NS	[d]		
Alaganik Slough	Alaganik Slough	NS	NS		14,600	**13,800**
	McKinley Lake	900	0	11,300		
	Salmon Creek W Fork	1,400	200	1,700		
	Salmon Creek E Fork	100	150	1,600		
26/27 Mile Creek	26/27 Mile Creek	200	0	1,800	1,800	**3,650**
39 Mile Creek	39 Mile Creek	4,000	1,100	11,500	11,500	**9,400**
Goat Mountain	Goat Mountain Creek	NC	NC	300	300	**1,000**
Pleasant Creek	Pleasant Creek	0	NS	1,000	1,000	**950**
Martin River	Martin River - Lower	0	NS	200	23,350	**29,800**
	Ragged Point River	200	0	2,200		
	Ragged Point Outlet	100	0	500		
	Ragged Point Lake	4,300	0	2,100		
	Martin River - Upper [b]	600	NC	2,500		
	Martin Lake Outlet	200	0	100		
	Martin Lake	1,200	1,000	9,000		
	Martin Lake Feeders	NS	NS	4,500		
	Pothole River	500	600	1,200		
	Pothole Lake	3,300	1,000	300		
	Little Martin River	0	0	50		
	Little Martin Lake	450	0	700		
Tokun	Tokun Springs	0	0	100	8,950	**9,350**
	Tokun River	100	0	450		
	Tokun Lake Outlet	0	0	600		
	Tokun Lake	6,300	100	7,800		
Martin River Slough	Martin River Slough	0	0	4,900	4,900	**6,600**
Copper River Aerial Survey Daily Total		34,250	4,150		87,500	
Anticipated Escapement Index		**16,700**	**1,400**			**89,050**

-Continued-

[a] The survey sites represent most of the known sockeye salmon spawning locations in the Copper River Delta drainage. Weather permitting, the sites are surveyed weekly. The surveys provide information about the relative strength of escapement among years and within a year, time for spawning sites and relative escapement strength among sites. The indices are not intended to provide an actual estimate of escapement for coastal stocks, but have been used for that purpose in the absence of any other escapement estimating method. The abbreviations used in the table have the following meaning: NS = no survey, NC = surveyed but no count due to poor conditions. The + sign after some counts indicates that the count is the minimum estimate seen in less than ideal conditions. The symbol * indicates that this survey count was used as the peak survey for the site without duplication of counts for survey sites along migratory corridors (see footnote b).

[b] The sites typically have very protracted run timing or two temporally segregated spawning populations at the same sites. Aerial counts from more then one day may be astricted and used in the escapement estimate if the surveyor indicates that these counts represented different fish.

[c] The escapement estimates for each site is in the astricted survey estimate. Where the survey site is a terminal spawning area, the peak count is used. However, if the site is a schooling area for migratory fish bound for sites further upstream, the count which minimizes possible duplicate of counts across dates is selected.

[d] This stream is not included in the estimated escapement delta wide, it is a non-index stream.

[e] The sum of the estimates by site within a system.

Appendix B.11. Copper River and Bering River area sockeye salmon escapement estimates, 1990 - 1998.

Stream/Lake [a,b]	1990	1991	1992	1993	1994	1995	1996	1997	1998
Eyak Lake	8,270	20,640	21,470	16,400	18,040	17,720	16,110	[d]	16,300
Hatchery Creek	2,800	5,100	2,200	1,100	2,800	3,700	1,900	[d]	3,300
Power Creek	205	1,870	1,420	700	500	650	1,200	[d]	1,500
Ibek Creek	160	120	40	[d]	800	[d]	100	[d]	[d]
McKinley Lake	1,400	2,000	10,300	7,700	12,700	13,100	8,600	8,500	11,300
Salmon Creek	2,000	3,330	25	3,000	420	200	2,600	3,100	3,300
26/27 Mile Creek	3,360	3,900	1,420	1,625	4,900	2,000	1,440	1,700	1,800
39 Mile Creek	5,000	5,340	4,500	4,000	7,000	5,400	6,200	9,300	11,500
Goat Mountain	420	20	620	[d]	600	650	1,000	350	300
Pleasant Creek	3,190	1,495	1,567	2,270	1,400	1,600	1,400	5,000	1,000
Martin River	350	2,045	1,400	1,500	4,700	1,500	2,700	1,100	2,700
Ragged Pt. R. Lake	8,950	5,900	2,600	1,325	0	6,200	1,540	4,400	4,800
Martin Lake	11,250	10,700	14,000	6,700	13,100	9,450	9,000	13,100	13,600
Pothole Lake	2,190	5,200	1,300	700	950	1,200	1,160	300	1,500
L. Martin Lake	5,700	11,700	1,780	1,900	1,760	2,500	300	470	750
Tokun Lake/River	4,200	5,960	8,230	3,400	2,850	7,150	7,150	5,750	8,950
Martin River Slough	13,900	5,180	3,955	5,400	5,850	3,350	3,070	4,000	4,900
Copper Delta Total	73,345	90,500	76,827	57,720	78,370	76,370	65,470	57,070	87,500
Upper Copper R. [c]	581,859	579,412	601,952	833,387	715,577	599,265	906,239	1,148,079	866,957
Copper R. Dist. Tot.	655,204	669,912	678,779	891,107	793,947	675,635	971,709	1,205,149	954,457
Bering River/Lake	16,325	26,480	54,180	23,120	23,000	28,650	22,420	[d]	21,600
Shepherd Creek	1,260	3,400	1,200	3,100	1,400	2,600	2,000	1,400	[d]
Stillwater Cr.	700	1,200	150	500	800	900	1,100	700	400
Kushtaka Lake	256	880	100	205	150	400	990	65	500
Katalla River	1,200	260	265	800	1,200	900	800	700	900
Bering R. Area Tot.	19,741	32,220	55,895	27,725	26,550	33,450	27,310	2,865	23,400
Copper/Bering Total	674,945	702,132	734,674	918,832	820,497	709,085	999,019	1,208,014	977,857

[a] The escapement figures in this table are based on peak aerial survey estimates and sonar counts from a majority of known salmon spawning areas in the Copper and Bering River Delta. These indices are not intended to provide a true estimate of total escapement for the coastal stocks, but a comparable index based upon the best data currently available. An effort has been made to standardize the estimates across years.

[b] The areas in this table represent combined survey sites corresponding to the "system" designations for the current year survey results presented elsewhere in this report.

[c] Upriver escapement estimate from Miles Lake sonar counts.

[d] Peak escapement estimates were not possible for these systems due to poor weather conditions.

Appendix B.12. Aerial survey indices of chinook salmon escapement to the upper Copper River, 1990 - 1998.

Location [a]	Yearly Survey Indices									10 Year Average 1985-1994
	1990	1991	1992 [b]	1993	1994	1995 [b]	1996	1997	1998	
East Fork Chistochina	615	865			508		2,050	2,245	740	582
Gulkana River	1,356	1,303		1,156	1,682		2,321	2,250	1,407	1,384
Mendeltna Creek	320	305		126	121		370	350	280	127
Kiana Creek	411	520		65	430		723	455	700	260
St. Anne Creek	42	115			250		117	900	515	107
Manker Creek	41	101			75		192	466	828	103
Grayling Creek	49	151			2		164	330	527	94
Little Tonsina River	57	54			4		45	55	NC	137
Indian River	15	18			47		207	270	48	18
Total Survey Index	2,906	3,432	0	1,347		0	6,189	7,321	5,045	2,812

[a] The escapement figures in this table are based on peak aerial survey estimates and weir counts from a majority of the known spawning areas in the upper Copper River drainage. These indices are not intended to provide a true estimate of total escapement for these stocks, but a comparable index based upon the best data currently available. An effort has been made to standardize the estimate across years, however counts were obtained only as environmental conditions allowed and may not necessarily correspond to periods of peak abundance. Missing counts are generally a result of bad weather, high water or other factors that prevent surveys for that given year.

[b] Due to poor weather conditions surveys were conducted late and are not comparable.

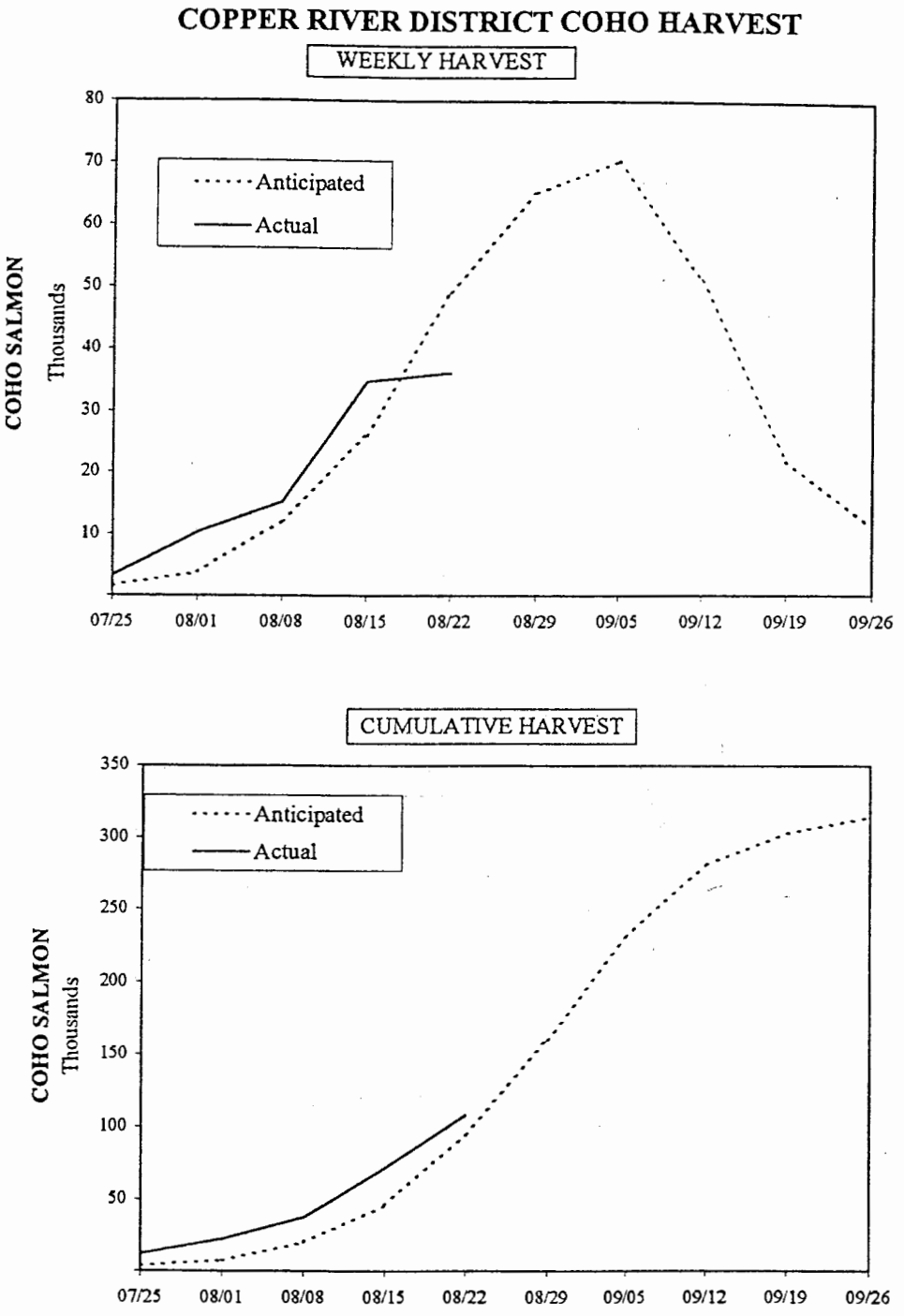
Appendix B.13. Aerial survey indices of sockeye salmon escapement to the upper Copper River drainage, 1990 - 1998.

Location [a]	Year survey Indices									10 Year Average
	1990	1991	1992	1993 [c]	1994 [c]	1995 [c]	1996	1997	1998	1983-92
Fish Lake	3,600	4,350	4,250				4,800		4,900	6,418
Bad Crossing 1&2	6,050	2,625	500				780		7,800	2,604
Suslota Lake	750	210	1,350				4,100		1,060	1,416
Dickey Lake	28	56	46				0		350	115
Keg Creek	160	95	630				850	420	160	725
Mahlo Creek	2,600	3,750	250				3,800	11,800	12,300	2,648
St. Anne Creek	1,700	4,700	450				3,500	4,800	4,100	4,888
Fish Cr.-Mentasta	1,000	1,050	480				400		1,400	963
Swede Lake	120	110	875				20		770	531
Tana River	89	750	740							1,345
Mentasta Lake	2,900	1,550	600				2,800		6,100	3,277
Tanada Lake	1,650	1,725	2,250		6,270	3,100				3,849
Salmon Creek	350	350	1,500							825
Paxson Inlt-Mud Cr	2,850	4,800	6,450				16,800		15,200	6,560
Mud Creek and Lake	35	100	425				240			172
Mendeltna Creek	3,700	3,050	1,750				1,250	400		2,470
Paxson Lake Outlet	1,350	2,300	950						200	2,661
Mud Cr.- Summit L.	2,950	9,625	3,800						700	7,445
Long Lake	1,950	[b]	1,050							1,577
Tonsina Lake	1,450	[b]	1,350							1,080
Totals	35,282	41,196	29,696						55,040	51,569

[a] The escapement figures in this table are based on peak aerial survey estimates and weir counts from a majority of the known spawning areas in the upper Copper River drainage. These indices are not intended to provide a true estimate of total escapement for these stocks, but a comparable index based upon the best data currently available. An effort has been made to standardize the estimate across years, however counts were obtained only as environmental conditions allowed and may not necessarliy correspond to periods of peak abundance. Missing counts are generally a result of bad weather, high water or other factors that prevent surveys for that given year.

[b] No survey flown.

[c] The Tanada Lake system was the only system surveyed in 1994 and 1995, no surveys were flown in 1993.



Appendix B.14. Anticipated and actual weekly and cumulative harvest of coho salmon in the Copper River drift gillnet fishery, 1998.

Appendix B.15. Aerial escapement indices by date and location for coho salmon returning to the Copper River Delta, 1998.

Copper River Delta[a] System and Drainage	Survey System	Aerial Escapement Indices by Survey Date[b] August 11	August 18	August 27	Sept. 7	Sept. 15	Oct. 21
Eyak River	Eyak River	500	700	1,200	NC	1,200	NC
	East Shore Beaches	600	900	1,000	NC	1,700	NC
	West Shore Beaches	0	0	300	400	1,000	450
	Middle Arm Beaches	0	0	0	0	0	NS
	North Shore Beaches	0	0	NC	NC	400	NC
	Hatchery Creek Delta	0	0	NS	0	300	1,400
	Hatchery Creek	0	0	NS	0	0	900
	Power Creek Delta	0	0	NS	200	1,000	600
	Power Creek	0	0	NS	300	200	4,300
Ibek Creek	Ibek Creek	NC	NC	NC	NC	1,500 +	NC
Scott River	Scott River[c]	NC	NC	NC	200	750	NS
	Elsner Lake[c]	0	0	0	0	0	NS
	Scott Lake[c]	0	0	0	0	0	NS
Alaganik Slough	Alaganik Slough	NS	NS	NS	NS	NC	NS
	18/20 Mile Creek	0	75	320	360	1,300	NS
	McKinley Lake	0	0	50	NC	400	200
	Salmon Creek West Fork	0	0	0	0	100	900
	Salmon Creek East Fork	0	0	0	0	200	1,200
26/27 Mile Creek	26/27 Mile Creek	0	20	+	150	250	700
39 Mile Creek	39 Mile Creek	40	400	700 +	1,300	1,950	2,100
Goat Mountain Cr.	Goat Mountain Creek	0	NC	50	700	800	500
Pleasant Creek	Pleasant Creek[c]	0	0	0	5	450	NS
Martin River	Martin River - Lower	155	1,380	650	NS	2,750	NS
	Ragged Point River	0	0	0	NS	0	850
	Ragged Point Lake Outlet	0	0	0	NS	0	0
	Ragged Point Lake	0	0	0	NS	0	0
	Martin River - Upper	60	650	1,700	NC	5,600	NC
	Martin Lake Outlet	0	0	0	NC	300	100
	Martin Lake	0	0	NC	NC	0	NC
	Martin Lake Feeders	0	0	NS	NS	NS	NS
	Pothole River	0	0	0	NS	0	1,500
	Pothole Lake	0	0	0	NS	0	0
	Little Martin River	0	0	100	1,000	1,500	3,800
	Little Martin Lake	0	0	0	0	0	0
	Tokun Springs	0	0	NC	500	600	200
	Tokun River	0	0	40	30	50	1,400
	Tokun Lake Outlet	0	0	0	0	0	0
	Tokun Lake	0	0	0	0	0	0
Martin River Slough	Martin River Slough	50	50	1,725	3,800	6,400	5,500
Copper River Aerial Survey Daily Total		1,405	4,175	7,835	8,945	30,700	26,600
Anticipated Escapement[b]		**3,750**	**11,700**	**17,750**	**18,950**	**32,600**	**25,000**

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Appendix B.15. (page 2 of 3)

Copper River Delta [a] System and Drainage	Survey System	Estimated Escapement Site [d]	System [e]	Anticipated
Eyak River	Eyak River		[f]	6,100
	East Shore Beaches			
	West Shore Beaches			
	Middle Arm Beaches			
	North Shore Beaches			
	Hatchery Creek Delta			
	Hatchery Creek			
	Power Creek Delta			
	Power Creek			
Ibek Creek	Ibek Creek		[f]	6,600
Scott River	Scott River [c]			
	Elsner Lake [c]			
	Scott Lake [c]			
Alaganik Slough	Alaganik Slough			
	18/20 Mile Creek		[f]	1,000
	McKinley Lake		[f]	2,500
	Salmon Creek West Fork			
	Salmon Creek East Fork			
26/27 Mile Creek	26/27 Mile Creek		[f]	400
39 Mile Creek	39 Mile Creek		[f]	3,800
Goat Mountain Cr.	Goat Mountain Creek		[f]	1,350
Pleasant Creek	Pleasant Creek [c]			
Martin River	Martin River - Lower		[f]	5,700
	Ragged Point River		[f]	1,200
	Ragged Point Lake Outlet			
	Ragged Point Lake			
	Martin River - Upper			
	Martin Lake Outlet		[f]	1,950
	Martin Lake			
	Martin Lake Feeders			
	Pothole River		[f]	2,350
	Pothole Lake			
	Little Martin River		[f]	6,000
	Little Martin Lake			
	Tokun Springs		[f]	1,100
	Tokun River			
	Tokun Lake Outlet			
	Tokun Lake			
Martin River Slough	Martin River Slough		[f]	9,200
Copper River Aerial Survey Total Anticipated Escapement [b]				49,250

-continued-

[a] The survey sites represent most of the known coho salmon spawning locations in the Copper River Delta drainage. Weather permitting, the sites are surveyed weekly. The surveys provide information about the relative strength of escapement among years and within a year, time for spawning sites and relative escapement strength among sites. The indices are not intended to provide an actual estimate of escapement for coastal stocks but have been used for that purpose in the absence of any other escapement estimating method. The abbreviations used in the following table have the following meaning: NS = no survey, NC = surveyed but no count due to poor conditions. The + sign after some counts indicates that the count is the minimum estimate seen in less than ideal conditions. The symbol * indicates that this survey count was used as the peak survey for the site without duplication of counts for survey sites along migratory corridors (see footnote d).

[b] For systems not flown on any given survey the expected for that system was subtracted from the total anticipated.

[c] This stream is not included in the estimated escapement delta wide, it is a non-index stream.

[d] The escapement estimates for each site is in the astricted survey estimate. Where the survey site is a terminal spawning area the peak count is used. However, if the site is a schooling area for migratory fish bound for sites further upstream, the count which minimizes possible duplication of counts across dates is selected.

[e] The sum of the estimates by site within the index systems.

[f] Due to poor weather conditions surveys were inconsistent and an estimate of final escapement for the systems are not possible.

Appendix B.16. Copper River Delta and Bering River coho salmon escapement estimates, 1990 - 1998.

Stream/Lake [a,b]	1990	1991	1992	1993	1994	1995	1996	1997	1998 [e]
Eyak Lake	5,775	7,170	5,710	NC [d]	9,900	4,050	5,100	6,800	
Hatchery Creek	1,940	0	1,100	NC [d]	700	170	0	1,400	
Power Creek	650	0	1,000	NC [d]	700	300	0	2,700	
Ibek Creek	3,950	13,540	9,600	NC [d]	3,060	3,000	6,300	4,700	
Scott & Elsner River	1,105	700	550	1,580	1,600	540	1,000	2,200	
18/20 Mile	630	4,200	915	1,750	3,300	2,550	3,800	3,300	
McKinley Lake	375	100	800	700	2,100	400	NC [d]	1,100	
Salmon Creek	1,970	1,770	0	1,400	0	1,250	1,500	2,500	
26/27 Mile	860	300	475	1,500	1,300	1,300	1,480	2,300	
39 Mile	2,230	2,100	1,900	1,600	4,150	3,800	5,250	6,100	
Goat Mountain	1,340	1,900	480	650	1,000	2,800	1,000	1,400	
Pleasant Cr. [c]	1	6	8	NS	45	100	40	620	
Martin River	400	1,600	1,900	4,540	10,600	5,000	15,400	NC [d]	
Ragged Pt. River/Lk	820	450	310	300	0	100	0	80	
Martin Lake	320	1,500	65	150	0	10	0	NC [d]	
Pothole Lake	2,670	6,000	300	730	0	300	140	60	
Little Martin Lake	7,400	11,360	10,800	6,400	200	1,500	700	10,500	
Tokun River/Lake	2,250	2,800	510	950	1,780	1,900	1,300	1,300	
Martin River Slough	7,700	8,860	8,140	11,200	5,120	5,950	4,100	10,500	
Copper Delta Total	42,386	64,356	44,563	33,450	45,555	35,020	47,110	57,560	
Katalla R.	2,960	4,000	2,760	4,400	4,500	4,500	6,800	8,000	
Bering Lake	2,040	12,300	3,540	5,900	5,800	10,600	6,000	14,800	
Dick Creek	1,500	1,220	1,250	200	100	100	0	1,300	
Shepherd Cr.	100	NS	NS	600	900	800	NC [d]	NC [d]	
Nichawak R.	2,900	2,560	1,970	4,100	2,000	2,700	2,000	4,300	
Gandil R.	910	1,460	600	1,250	950	1,350	1,000	1,900	
Controller Bay	14,390	9,760	6,180	13,600	14,300	7,400	11,000	12,100	
Bering Area Total	24,800	31,300	16,300	30,050	28,550	27,450	26,800	42,400	
Copper/Bering Total	67,186	95,656	60,863	63,500	74,105	62,470	73,910	99,960	

[a] The escapement figures in this table are based on peak aerial survey estimates counts from a majority of the known salmon spawning areas in the Copper and Bering River Delta. These indices are not intended to provide a true estimate of total escapement for the coastal stocks, but a comparable index based upon the best data currently available. An effort has been made to standardize the estimates across years, however counts were obtained only as environmental conditions allowed and may not necessarily correspond to periods of peak abundance. Missing counts are generally a result of bad weather, high water, turbulence or other factors that prevent surveys for that given year.

[b] The areas in this table represent combined survey sites corresponding to the "system" designations for the current year survey results presented elsewhere in this report.

[c] Not an indexed stream.

[d] Due poor stream or weather conditions these systems are listed as "NC" no count. See Appendix B.15. for weekly observations.

[e] Due to weather conditions and timing of surveys no peak estimate was possible.

Appendix B.17. Estimated age and sex composition of sockeye salmon harvested in the Copper River District commercial common property drift gillnet fishery, 1998.

		Brood Year and Age Class											
		1995		1994			1993			1992		1991	
		0.2	1.1	0.3	1.2	2.1	0.4	1.3	2.2	1.4	2.3	2.4	Total
Strata Combined:	05/14 - 08/21												
Sampling dates:	05/15 - 07/25												
Sample Size:	4,502												
Female	Percentage of Sample	0.1	0.0	2.8	6.0	0.0	0.0	39.2	0.5	0.3	3.1	0.0	52.0
	Number in catch	1,083	0	37,580	80,918	0	273	525,552	7,114	4,203	41,238	0	697,961
Male	Percentage of Sample	0.1	0.0	3.0	6.7	0.0	0.1	35.1	0.4	0.4	2.1	0.0	47.9
	Number in catch	1,798	482	40,156	89,557	482	1,075	470,360	6,008	5,035	27,748	546	643,247
Total	Percentage of Sample	0.2	0.0	5.8	12.7	0.0	0.1	74.3	1.0	0.7	5.1	0.0	100.0
	Number in catch	2,882	482	77,735	170,475	482	1,348	996,397	13,122	9,237	68,987	546	1,341,692
	Standard error	937	482	4,677	6,677	482	613	8,971	2,008	1,826	4,563	386	

Appendix B.18. Estimated age and sex composition of chinook salmon harvested in the Copper River District commercial common property drift gillnet fishery, 1998.

		Brood Year and Age Class										
		1995		1994			1993		1992		1991	
		0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	2.4	Total
Strata Combined:	05/14 - 08/21											
Sampling dates:	05/15 - 06/02											
Sample size:	1,920											
Female	Percentage of sample	0.0	0.1	0.1	1.9	0.0	37.5	0.1	14.3	0.3	0.5	54.9
	Number in catch	0	43	43	1,316	0	25,839	101	9,852	212	348	37,753
Male	Percentage of sample	0.1	0.2	0.0	4.6	0.1	25.7	0.1	13.4	0.1	0.4	44.7
	Number in catch	43	132	0	3,185	43	17,680	86	9,197	101	277	30,743
Total	Percentage of sample	0.1	0.3	0.1	6.5	0.1	63.7	0.3	27.7	0.5	0.9	100.0
	Number in catch	43	175	43	4,500	43	43,824	187	19,048	339	625	68,827
	Standard error	43	87	43	409	43	771	86	721	110	154	

Appendix B.19. Estimated age and sex composition of coho salmon harvested in the Copper River District commercial common property drift gillnet fishery, 1998.

		Brood Year and Age Class			
		1995	1994	1993	
		1.1	2.1	3.1	Total
Strata Combined:	05/14 - 08/21				
Sampling dates:	08/12 - 08/21				
Sample Size:	834				
Female	Percentage of Sample	25.8	18.4	0.2	44.3
	Number in catch	27,875	19,916	175	47,966
Male	Percentage of Sample	30.7	24.9	0.1	55.7
	Number in catch	33,214	26,965	87	60,266
Total	Percentage of Sample	56.4	43.3	0.2	100.0
	Number in catch	61,089	46,881	262	108,232
	Standard error	1,954	1,953	151	

Appendix B.20. Commercial salmon catch by species in the Bering River District, 1973 - 1998.

Year	Catch by Species					Total
	Chinook	Sockeye	Coho	Pink	Chum	
1973	285	15,426	65,348	2	5	81,066
1974	32	4,208	28,615	7	2	32,864
1975	162	21,637	24,162	0	0	45,961
1976	228	30,908	42,423	43	1	73,603
1977	127	14,445	47,218	192	221	62,203
1978	331	33,554	91,097	266	2,391	127,639
1979	385	139,015	114,046	6,895	23,094	283,435
1980[a]	0	0	108,872	0	0	108,872
1981	200	55,585	82,626	9,882	8,307	156,600
1982	254	129,667	144,752	47	333	275,053
1983	610	179,273	117,669	851	4,615	303,018
1984	330	91,784	214,632	309	20,408	327,463
1985	215	26,561	419,276	214	9,642	455,908
1986	128	19,038	115,809	15	243	135,233
1987	34	16,926	15,864	54	7	32,885
1988	19	7,152	86,539	23	181	93,914
1989	30	9,225	26,952	7	2	36,216
1990	14	8,332	42,952	2	1	51,301
1991	28	19,181	110,951	4	195	130,359
1992	21	19,721	125,616	4	1	145,363
1993	130	33,951	115,833	82	22	150,018
1994	121	27,926	259,003	34	63	287,147
1995	44	21,585	282,045	26	229	303,929
1996	111	37,712	93,763	0	30	131,616
1997	23	9,651	97	2	0	9,773
1998	70	8,439	12,284	5	2	20,800
Ten Year Average (1988-97)	54	19,444	114,375	18	72	133,964

[a] In 1980 no fishing was allowed prior to August 11.

Appendix B.21. Commercial salmon harvest by period in the Bering River District drift gillnet fishery, 1998.

					Chinook		Sockeye		Coho		Pink		Chum	
Period	Date [a,b]	Hours	Permits	Landings	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1	6/11	24	26	30	51	849	5185	32408	0	0	0	0	1	7
2	6/15	24	11	12	8	130	2292	13803	0	0	0	0	0	0
3	6/18	24	5	6	4	125	571	3342	0	0	0	0	0	0
4	6/22	24	3	4	6	166	279	2071	0	0	0	0	0	0
5	8/17	24	18	26	1	15	24	144	3979	31783	5	18	0	0
6	8/20	24	59	88	0	0	88	569	8305	81541	0	0	1	8
Total		144	86	166	70	1285	8439	52337	12284	113324	5	18	2	15
Average Weight (lbs)						18.36		6.20		9.23		3.60		7.50

[a] For starting times of specific openings refer to Appendix B.26.

[b] Starting date of period.

Appendix B.22. Aerial escapement indices by date and location for sockeye salmon returning to the Bering River Delta, 1998.

Bering River Delta [a] System and Drainage	Survey System	June 15	June 18	June 22	June 26	June 30	July 7
Bering River	Bering River	2,700	1,500	NC	800	100	NC
	Bering Lake	2,000	4,100	NC	4,800	10,200	NC
	Dick Creek	0	0	0	40	100	100
	Shepherd Creek - Lagoon	NC	NC	NC	NC	NC	NC
	Shepherd Creek	NS	NS	NS	NS	NS	NC
	Carbon Creek	NS	NS	NS	NS	NS	0
	Clear Creek	NS	NS	NS	NS	NS	0
	Kushtaka Lake	NS	NS	NS	NS	NS	0
	Shockum Creek	NS	NS	NS	NS	NS	0
Kattalla River [b]	Katalla River	0	0	NC	700	700	NC
Bering River Aerial Survey Daily Index		4,700	5,600	NA	6,340	11,100	100
Anticipated Escapement Index [c]		8,100	8,100	13,050	11,250	20,400	NA

Bering River Delta [a] System and Drainage	Survey System	July 12	July 29	August 5	August 11	August 18	August 27
Bering River	Bering River	2,300 *	NC	NS	600	600 *	NC
	Bering Lake	14,200 *	5,500	3,300	3,400	2,200	1,300
	Dick Creek	4,500 *	8,600	5,600	2,700	5,825	1,300
	Shepherd Creek - Lagoon	NC	NC	NS	NS	NC	NS
	Shepherd Creek	NS	50	NS	NS	NC	NS
	Carbon Creek	NS	50	NS	NS	70	NS
	Clear Creek	0	600	400 *	NS	NS	NS
	Kushtaka Lake	0	100	300 *	NS	NS	NS
	Shockum Creek	0	0	200 *	NS	NS	NS
Kattalla River [b]	Katalla River	900	300	NC	450	200	NC
Bering River Aerial Survey Daily Index		21,900	15,200	9,800	7,150	8,895	2,600
Anticipated Escapement Index [c]		20,150	19,900	16,850	3,550	4,050	1,300

-continued-

Appendix B.22 (page 2 of 2).

Bering River Delta [a]		Aerial Escapement Indices by Survey Date				
System and Drainage	Survey System	Sept. 07	Sept. 15	Site [d]	System [f]	Anticipated
	Bering River	400	600	2,900	21,600	**23,500**
	Bering Lake	2,400	2,400	14,200		
	Dick Creek	1,400	900	4,500		
	Shepherd Creek - Lagoon	NC	NC			
	Shepherd Creek	NS	NS			
	Carbon Creek	NS	NS			
	Clear Creek	NS	NS	400	400	**1,500**
	Kushtaka Lake	NS	NS	200	500	**1,600**
	Shockum Creek	NS	NS	300		
Kattalla River [b]	Katalla River	0	75			
Bering River Aerial Survey Daily Index		4,200	3,975		22,500	
Anticipated Escapement Index [e]		**200**	**500**			**26,600**

[a] The survey sites represent most of the known sockeye salmon spawning locations in the Bering River drainage. Weather permitting, the sites are surveyed weekly. The surveys provide information about the relative strength of escapement among years and within a year, time for spawning sites and relative escapement strength among sites. The indices are not intended to provide an actual estimate of escapement for coastal stocks but have been used for that purpose in the absence of any other escapement estimating method. The abbrevations used in the following table have the following meaning: NS = no survey, NC = surveyed but no count due to poor conditions. The + sign after some counts indicates that the count is the minimum estimate seen in less than ideal conditions. The symbol * indicates that this survey count was used as the peak survey for the site without duplication of counts for survey sites sites along migratory corridors (see footnote d).

[b] This stream is not included in the estimated escapement delta wide, it is a non-index stream.

[c] For systems not flown on any given survey the expected for that system was subtracted from the total anticipated for that survey.

[d] The escapement estimates for each site is in the astricted survey estimate. Where the survey site is a terminal spawning area the peak count is used. However, if the site is a schooling area for migratory fish bound for sites further upstream the count which minimizes possible duplication of counts across dates is selected.

[e] Due to poor weather conditions during peak of run, no estimate was possible.

[f] The sum of the estimates by site within a system.

Appendix B.23. Anticipated and actual weekly catch and escapement of coho salmon in the Bering River District drift gillnet fishery, 1998.

Week Ending Date	Fishing Time (Hrs.)	Coho		Coho Escapement	
		Actual Catch	Anticipated Catch [a]	Peak Aerial Index	Anticipated Peak Index [b]
July 25			41		
August 01			56		
August 08			157		
August 15			450	150	1,500
August 22	Two 24-hr	12,284	9,566	700	7,500
August 29			27,244	3,200	11,200
September 05			41,393		21,200
September 12			37,049	17,400	20,200
September 19			13,601	29,750	19,000
September 26			4,372		17,400
Season Total		12,284	133,929		22,117

[a] Based on average historic catches for comparable dates (1969-1996).

[b] Based on average historic aerial escapement surveys for comparable dates (1984 - 1992).

Appendix B.24. Aerial escapement indices by date and location for coho salmon returning to the Bering River Delta, 1998.

Bering River Delta [a]		Aerial Escapement Indices by Survey Date					
System and Drainage	Survey System	August 11	August 18	August 27	Sept. 7	Sept. 15	Oct. 21
Bering River	Bering River [b]	100	250	1,000	1,100	3,200 *	NS
	Bering Lake			550	4,000	11,100 *	NC
	Dick Creek			0	0	0 *	50
Shepherd Drainage [c]	Shepherd Creek - Lagoon	NS	NC	NS	NC	NC	NS
	Shepherd Creek	NS	NC	NS	NS	NS	NS
	Carbon Creek	NS	0	NS	NS	NS	NS
Katalla River	Katalla River	50	400	NC	3,500	5,100 *	NS
Lower Bering River	Gandil River	0	0	150	500	950 *	NS
	Nichawak River	0	0	NC	2,100	2,500 *	NS
Controller Bay	Campbell River	0	0	0	0	0 *	NS
	Edwards River	0	0	1,300	3,500	4,000 *	NS
	Okalee River	0	50	NC	2,200	2,500 *	NS
	Other Clear Streams	0	0	200	500	400 *	NS
Bering River Aerial Survey Daily Index		150	700	3,200	17,400	29,750	50
Anticipated Aerial Index [d]			7,500	11,200	20,150	18,950	NA

Bering River Delta [a]		Estimated Escapement		
System and Drainage	Survey System	Site [e]	System [f]	System [f]
Bering River	Bering River [b]	3,200	14,300	5,700
	Bering Lake	11,100		
	Dick Creek	0		
Shepherd Drainage [c]	Shepherd Creek - Lagoon	NC		
	Shepherd Creek	NS		
	Carbon Creek	NS		
Katalla River	Katalla River	5,100	5,100	4,000
Lower Bering River	Gandil River	950	3,450	2,600
	Nichawak River	2,500		
Controller Bay	Campbell River	0	6,900	9,900
	Edwards River	4,000		
	Okalee River	2,500		
	Other Clear Streams	400		
Bering River/Controller Bay Aerial Survey Total			29,750	
Anticipated Aerial Index				22,200

[a] The survey sites represent most of the known coho salmon spawning locations in the Bering River drainage. Weather permitting, the sites are surveyed weekly. The surveys provide information about the relative strength of escapement among years and within a year, time for spawning sites and relative escapement strength among sites. The indices are not intended to provide an actual estimate of escapement for coastal stocks but have been used for that purpose in the absence of any other escapement estimating method. The abbrevations used in the following table have the following meaning: NS = no survey, NC = surveyed but no count due to poor conditions. The + sign after some counts indicates that the count is the minimum estimate seen in less than ideal conditions. The symbol * indicates that this survey count was used as the peak survey for the site without duplication of counts for survey sites along migratory corridors (see footnote e).

[b] Bering River counts include coho observed in the Don Miller Hill tributaries.

[c] This stream is not included in the estimated escapement delta wide, it is a non-index stream.

[d] Systems not flown on a survey, the expected for that system was subtracted from the total anticipated.

[e] The escapement estimates for each site is in the astricted survey estimate. Where the survey site is a terminal spawning area the peak count is used. However, if the site is a schooling area for migratory fish bound for sites further upstream, the count which minimizes possible duplication of counts across dates is selected.

[f] The sum of the estimates by site within a system

Appendix B.25 Estimated age and sex composition of coho salmon harvested in the Bering River District commercial common property drift gillnet fishery, 1998.

		Brood Year and Age Class		
		1995	1994	
		1.1	2.1	Total
Stratum dates:	08/17 - 08/21			
Sampling dates:	08/22 - 08/22			
Sample size:	404			
Female	Percentage of sample	25.2	19.3	44.6
	Number in catch	3,101	2,372	5,473
Male	Percentage of sample	29.7	25.7	55.4
	Number in catch	3,649	3,162	6,811
Total	Percentage of sample	55.0	45.0	100.0
	Number in catch	6,750	5,534	12,284
	Standard error	304	304	

Appendix B.26. Summary of periods and emergency orders issued for the commercial salmon gillnet fisheries in the Bering and Copper River Districts, 1998.

Bering River District (200)			Copper River District (212)			Emergency
Periods	Dates	Hours Fished	Periods	Dates	Hours Fished	Orders Issued
			1	5/14 - 5/15	24	2-F-E-20-98
						2-F-E-22-98
			2	5/18 - 5/19	24	2-F-E-23-98
			3	5/22	12	2-F-E-24-98
			4	5/25	12	2-F-E-27-98
			5	5/28 - 5/29	24	2-F-E-28-98
			6	6/01 - 6/02	24	2-F-E-29-98
			7	6/04 - 6/05	24	2-F-E-30-98
			8	6/08 - 6/09	24	2-F-E-31-98
			9	6/11 - 6/12	24	2-F-E-32-98
1	6/11 - 6/12	24	10	6/15 - 6/16	24	2-F-E-33-98
2	6/15 - 6/16	24	11	6/18 - 6/19	24	2-F-E-34-98
3	6/18 - 6/19	24	12	6/22- 6/23	24	2-F-E-37-98
4	6/22 - 6/23	24	13	6/26	12	2-F-E-39-98
			14	6/29	12	2-F-E-40-98
			15	7/02 - 7/03	24	2-F-E-42-98
			16	7/06 - 7/07	24	2-F-E-43-98
			17	7/09 - 7/11	36	2-F-E-46-98
			18	7/13 - 7/14	36	2-F-E-47-98
						2-F-E-48-98
			19	7/16 - 7/18	36	2-F-E-51-98
			20	7/20 - 7/21	36	
			21	7/23 - 7/25	36	2-F-E-54-98
			22	7/27 - 7/28	36	
			23	7/30 - 8/01	36	2-F-E-68-98
			24	8/03 - 8/04	36	
			25	8/06 - 8/08	36	2-F-E-69-98
			26	8/10 - 8/11	24	2-F-E-70-98
			27	8/13 - 8/14	24	2-F-E-72-98
5	8/17 - 8/18	24	28	8/17 - 8/18	24	2-F-E-74-98
6	8/20 - 8/21	24	29	8/20 - 8/21	24	2-F-E-78-98
						2-F-E-84-98

[a] The Copper River schedule is typically two 24-hour periods per week; from 7:00 a.m. Monday to 7:00 a.m. Tuesday and from 7:00 p.m Thursday to 7:00 p.m. Friday. All 12-hours periods began at 7:00 a.m.

[b] The following waters were closed to commercial fishing during the 24-hour period on May 14: The waters inside of a line from the Steamboat marker to the U.S.C.G. light on the west side of Pete Dahl entrance to the ADF&G marker located on the east side of Pete Dahl entrance and from the U.S.C.G. light on the west side of Grass Island entrance to the ADF&G marker located on the east side of Grass Island entrance and from the U.S.C.G light on the west side of Kokenhinik Island entrance to the ADF&G marker located on the east side of Kokenhenik Island entrance and all waters west of the ADF&G marker at Coffee Creek.

[c] The Copper River District was extended an additional 12-hours.

[d] The Copper River District was opened for two 36-hour periods.

[e] All fishing periods after August 8 in the Copper and Bering River Districts began at 12:00 noon.

[f] The Copper and Bering River Districts closed for the 1998 season at 12:01 p.m. Wednesday, September 8, 199

APPENDIX C: COGHILL AND UNAKWIK DISTRICTS

Appendix C.1. Commercial salmon harvest by period in the Coghill District drift gillnet and purse seine fisheries, Prince William Sound, 1998.

Period	Date [a,b]	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
					Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds
DRIFT GILLNET														
1	6/15	24	186	469	223	3,865	358	2,352	0	0	1	4	115,875	912,649
2	6/19	12	225	321	82	1,306	1,257	8,178	0	0	0	0	53,524	417,176
3	6/22	12	219	295	83	1,393	2,347	15,747	2	14	3	10	38,444	297,951
4	6/25	24	205	340	53	868	6,445	43,142	15	111	76	289	25,181	196,535
5	6/29	24	126	248	89	1,140	10,935	70,182	22	151	417	1,495	22,016	168,362
6	7/2	24	89	135	14	233	7,415	47,430	11	87	1,476	5,503	15,833	121,564
7	7/6	24	118	207	38	507	12,776	81,734	29	215	4,252	15,636	26,018	201,537
8	7/9	24	84	147	6	86	6,333	40,219	80	597	6,302	23,429	22,033	171,521
9	7/23	24	78	157	4	66	4,452	28,536	554	4,472	22,433	87,090	14,337	110,738
10	7/27	24	82	152	13	211	4,724	29,806	524	4,277	33,246	121,928	12,915	96,472
11	7/31	12	21	26	0	0	632	4,191	75	567	7,596	28,218	476	3,847
12	8/06	12	22	25	0	0	433	2,713	78	569	16,400	53,357	228	2,017
13	8/09	12	39	66	0	0	656	4,496	106	806	54,865	186,277	291	2,598
14	8/11	12	27	41	0	0	289	1,995	25	192	33,935	111,225	90	696
15	8/13	12	15	15	0	0	40	281	5	37	8,520	33,807	20	162
16	8/15	12	18	20	0	0	158	1,121	13	96	19,540	58,636	29	233
17	8/17	12	14	15	0	0	43	302	12	85	19,158	57,500	4	31
18	8/19	12	13	15	0	0	8	58	2	16	29,626	93,603	2	15
19	8/20	36	18	20	0	0	158	1,059	103	945	29,941	89,990	0	0
20	8/22	36	19	20	0	0	0	0	0	0	28,522	94,124	0	0
21	8/24	36	17	18	0	0	0	0	0	0	22,151	70,006	0	0
22	8/26	36	11	11	0	0	0	0	0	0	22,725	70,004	0	0
23	8/28	36	16	17	0	0	0	0	0	0	22,419	70,001	0	0
24	8/30	36	0	0	0	0	0	0	0	0	0	0	0	0
25	9/01	36	0	0	0	0	0	0	0	0	0	0	0	0
26	9/03	36	0	0	0	0	0	0	0	0	0	0	0	0
27	9/05	36	0	0	0	0	0	0	0	0	0	0	0	0
28	9/07	36	0	0	0	0	0	0	0	0	0	0	0	0
29	9/09	36	0	0	0	0	0	0	0	0	0	0	0	0
30	9/11	36	4	4	0	0	0	0	378	2,927	0	0	0	0
31	9/13	420	0	0	0	0	0	0	0	0	0	0	0	0
32	9/30	96	6	9	0	0	4	26	891	8,024	0	0	1	7
Total		1,260	317	2,793	605	9,675	59,463	383,568	2,925	24,188	383,604	1,272,132	347,317	2,704,111
Average Weight						15.99		6.45		8.27		3.32		7.79
PURSE SEINE [b]														
1	7/23	24	25	29	6	90	589	3,560	300	2,344	78,477	301,113	3,671	29,742
2	7/27	24	48	59	9	157	599	3,516	483	3,532	136,328	486,544	17,207	137,244
3	7/31	12	8	9	2	19	82	540	51	422	29,880	101,821	291	2,725
4	8/06	12	0	0	0	0	0	0	0	0	0	0	0	0
5	8/09	12	27	39	1	12	131	819	61	520	384,937	1,419,578	195	1,585
6	8/11	12	30	37	1	15	47	317	18	167	279,740	981,214	37	268
7	8/13	12	31	38	0	0	57	352	30	253	273,501	1,017,894	34	274
8	8/15	12	22	32	1	46	52	339	52	433	253,140	966,297	29	224
9	8/17	12	10	11	0	0	80	556	54	381	73,576	275,493	22	149
10	8/19	12	9	12	0	0	44	269	15	150	101,764	370,493	13	91
11	8/20	12	3	3	0	0	5	42	15	115	26,049	100,740	3	26
12	8/22	36	5	7	0	0	12	78	31	243	86,398	302,391	5	41
13	8/24	36	5	9	0	0	4	25	45	351	113,151	411,491	0	0
14	8/26	36	6	7	0	0	0	0	0	0	157,537	575,904	0	0
15	8/28	36	4	6	0	0	0	0	0	0	90,713	315,705	0	0
16	8/30	36	3	6	0	0	0	0	0	0	148,643	554,429	0	0
17	9/01	36	4	6	0	0	0	0	0	0	131,636	483,627	0	0
18	9/03	36	4	8	0	0	0	0	0	0	159,982	597,481	0	0
19	9/05	36	3	7	0	0	0	0	0	0	116,639	424,307	0	0
20	9/07	36	3	4	0	0	0	0	283	2,104	80,339	275,401	93	750
21	9/09	36	3	4	0	0	0	0	93	560	50,342	207,102	0	0
22	9/11	36	0	0	0	0	0	0	0	0	0	0	0	0
23	9/13	420	1	3	0	0	0	0	0	0	72,385	270,000	0	0
		444	71	336	20	339	1,702	10,413	1,531	11,575	2,845,157	10,439,025	21,600	173,119
Average Weight						16.95		6.12		7.56		3.67		8.01
Combined Total				3,129	625	10,014	61,165	393,981	4,456	35,763	3,228,761	11,711,157	368,917	2,877,230
Average Weight						16.02		6.44		8.03		3.63		7.80

[a] Starting date of period.

[b] No reported catch by purse seine gear for periods 24 through 32.

Appendix C.2. Commercial salmon catch by species in the Coghill District, Prince William Sound, 1981 - 1998.

	CATCH BY SPECIES					
Year	Chinook	Sockeye	Coho	Pink	Chum	Total
DRIFT GILLNET						
1981	152	101,058	1,008	526,739	131,399	760,356
1982	127	929,965	213	181,925	252,077	1,364,307
1983	340	38,273	1,013	233,263	234,022	506,911
1984	396	94,956	563	897,496	264,878	1,258,289
1985	380	339,296	1,131	454,531	246,824	1,042,162
1986	617	381,565	789	68,887	218,971	670,829
1987	352	377,454	13,396	712,897	318,842	1,422,941
1988	501	82,294	41,307	1,314,061	346,388	1,784,551
1989	364	106,114	80,737	628,522	194,584	1,010,321
1990	126	11,988	128,605	1,907,510	301,209	2,349,438
1991	92	3,888	78,363	231,501	34,223	348,067
1992	242	57,919	86,782	167,384	182,433	494,760
1993	576	66,532	37,898	141,279	635,208	881,493
1994	390	12,928	50,879	58,334	554,181	676,712
1995	468	57,797	29,343	161,493	379,659	628,760
1996	575	177,530	20,926	59,447	612,969	871,447
1997	862	227,231	5,618	154,969	689,977	1,078,657
1998	605	59,463	2,925	383,604	347,317	793,914
Ten Year Average (1988-97)	413	107,425	52,169	503,400	386,334	1,049,741
PURSE SEINE						
1981	1	1,997	0	34,083	23,378	59,459
1982	23	17,466	29	1,006,579	135,553	1,159,650
1983	0	175	16	41,048	8,958	50,197
1984	0	21	0	10,911	1,126	12,058
1985	85	10,757	112	69,242	19,330	99,526
1986	186	18,514	98	145,706	27,078	191,582
1987	58	38,899	1,956	865,671	59,252	965,836
1988	63	1,623	15,787	1,600,481	11,755	1,629,709
1989	61	2,030	39,484	3,296,965	124,639	3,463,179
1990	2	286	11,819	785,278	10,951	808,336
1991	11	1,562	621	1,980,074	11,519	1,993,787
1992	6	765	27,382	196,503	1,603	226,259
1993	46	6,250	1,760	352,468	3,645	364,169
1994	50	21,060	30,517	3,538,760	3,575	3,593,962
1995	33	20,670	5,337	917,200	2,597	945,837
1996	1	2,640	5,319	1,484,422	463	1,492,845
1997	7	5,694	1,269	1,875,617	33,139	1,915,726
1998	20	1,702	1,531	2,845,157	21,600	2,870,010
Ten Year Average (1988-97)	28	6,258	13,930	1,602,777	20,389	1,643,381
COMBINED GEARS						
1981	153	103,055	1,008	560,822	154,777	819,815
1982	150	947,431	242	1,188,504	387,630	2,523,957
1983	340	38,448	1,029	274,311	242,980	557,108
1984	396	94,977	563	908,407	266,004	1,270,347
1985	465	350,053	1,243	523,773	266,154	1,141,688
1986	803	400,079	887	214,593	246,049	862,411
1987	410	416,353	15,352	1,578,568	378,094	2,388,777
1988	564	83,917	57,094	2,914,542	358,143	3,414,260
1989	425	108,144	120,221	3,925,487	319,223	4,473,500
1990	128	12,274	140,424	2,692,788	312,160	3,157,774
1991	103	5,450	78,984	2,211,575	45,742	2,341,854
1992	248	58,684	114,164	363,887	184,036	721,019
1993	622	72,782	39,658	493,747	638,853	1,245,662
1994	440	33,988	81,396	3,597,094	557,756	4,270,674
1995	501	78,467	34,680	1,078,693	382,256	1,574,597
1996	576	180,170	26,245	1,543,869	613,432	2,364,292
1997	869	232,925	6,887	2,030,586	723,116	2,994,383
1998	625	61,165	4,456	3,228,761	368,917	3,663,924
Ten Year Average (1988-97)	448	86,680	69,975	2,085,227	413,472	2,655,802

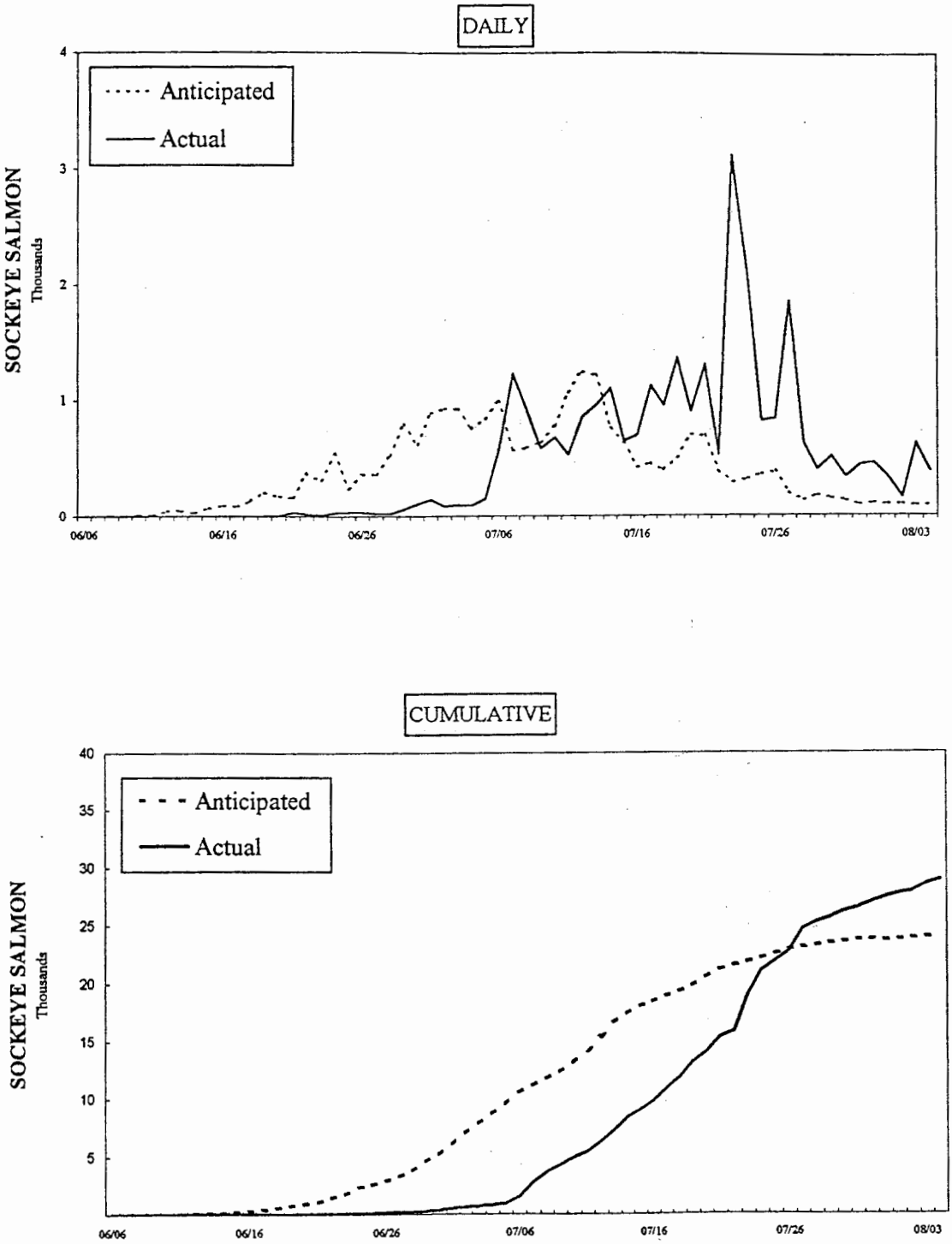
Appendix C.3. Daily salmon escapement through the Coghill River weir, Prince William Sound, 1998.

	Sockeye		Pink[b]		Chum		Coho		Chinook	
Date	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.
06/05		0		0		0		0		0
06/06	0	0	0	0	0	0	0	0	0	0
06/07	0	0	0	0	0	0	0	0	0	0
06/08 [a]		0		0		0		0		0
06/09 [a]		0		0		0		0		0
06/10 [a]		0		0		0		0		0
06/11 [a]		0		0		0		0		0
06/12 [a]		0		0		0		0		0
06/13 [a]		0		0		0		0		0
06/14 [a]		0		0		0		0		0
06/15	0	0	0	0	0	0	0	0	0	0
06/16	0	0	0	0	0	0	0	0	0	0
06/17	1	1	0	0	0	0	0	0	0	0
06/18	4	5	0	0	0	0	0	0	0	0
06/19	5	10	0	0	0	0	0	0	0	0
06/20	37	47	0	0	0	0	0	0	0	0
06/21	17	64	0	0	0	0	0	0	0	0
06/22	10	74	0	0	0	0	0	0	0	0
06/23	33	107	0	0	0	0	0	0	0	0
06/24	37	144	0	0	0	0	0	0	0	0
06/25	39	183	0	0	0	0	0	0	0	0
06/26	22	205	0	0	0	0	0	0	1	1
06/27	22	227	0	0	0	0	0	0	0	1
06/28	60	287	0	0	0	0	0	0	0	1
06/29	108	395	0	0	0	0	0	0	0	1
06/30	144	539	0	0	0	0	0	0	1	2
07/01	83	622	0	0	0	0	0	0	0	2
07/02	99	721	0	0	0	0	0	0	0	2
07/03	95	816	0	0	0	0	0	0	0	2
07/04	150	966	1	1	0	0	0	0	0	2
07/05	576	1,542		1	0	0	0	0	1	3
07/06	1,226	2,768	1	2	0	0	0	0	0	3
07/07	919	3,687	1	3	0	0	0	0	1	4
07/08	588	4,275	1	4	0	0	0	0	1	5
07/09	680	4,955	2	6	0	0	0	0	1	6
07/10	533	5,488	2	8	0	0	0	0	0	6
07/11	859	6,347	1	9	0	0	0	0	1	7
07/12	959	7,306	3	12	1	1	0	0	0	7
07/13	1,098	8,404	14	26	0	1	0	0	0	7
07/14	645	9,049	6	32	0	1	0	0	0	7
07/15	698	9,747	19	51	1	2	1	1	1	8
07/16	1,124	10,871	34	85	0	2	0	1	0	8
07/17	951	11,822	36	121	2	4	1	2	0	8
07/18	1,358	13,180	88	209	0	4	1	3	0	8
07/19	899	14,079	29	238	1	5	0	3	2	10
07/20	1,301	15,380	118	356	2	7	0	3	0	10
07/21	526	15,906	61	417	5	12	1	4	0	10
07/22	3,130	19,036	1,157	1,574	11	23	1	5	1	11
07/23	2,113	21,149	971	2,545	1	24	3	8	1	12
07/24	817	21,966	147	2,692	2	26	3	11	1	13
07/25	839	22,805	823	3,515	9	35	4	15	0	13
07/26	1,847	24,652	2,425	5,940	4	39	8	23	2	15
07/27	624	25,276	607	6,547	2	41	0	23	0	15
07/28	399	25,675	821	7,368	3	44	4	27	0	15
07/29	510	26,185	2,477	9,845	6	50	7	34	0	15
07/30	335	26,520	507	10,352	1	51	5	39	1	16
07/31	438	26,958	658	11,010	0	51	4	43	0	16
08/01	458	27,416	402	11,412	2	53	15	58	0	16
08/02	341	27,757	615	12,027	2	55	6	64	0	16
08/03	159	27,916	591	12,618	2	57	1	65	0	16
08/04	623	28,539	1,060	13,678	6	63	1	66	2	18
08/05	384	28,923	2,594	16,272	15	78	3	69	0	18

[a] Weir was pulled due to high water.

[b] Count may be incomplete. The Coghill weir is designed to prohibit the passage of sockeye salmon, but smaller pink salmon may pass through the weir uncounted.

COGHILL LAKE SOCKEYE SALMON ESCAPEMENT



Appendix C.4. Anticipated daily and cumulative sockeye salmon escapement versus actual escapement past the Coghill River weir, Prince William Sound, 1998.

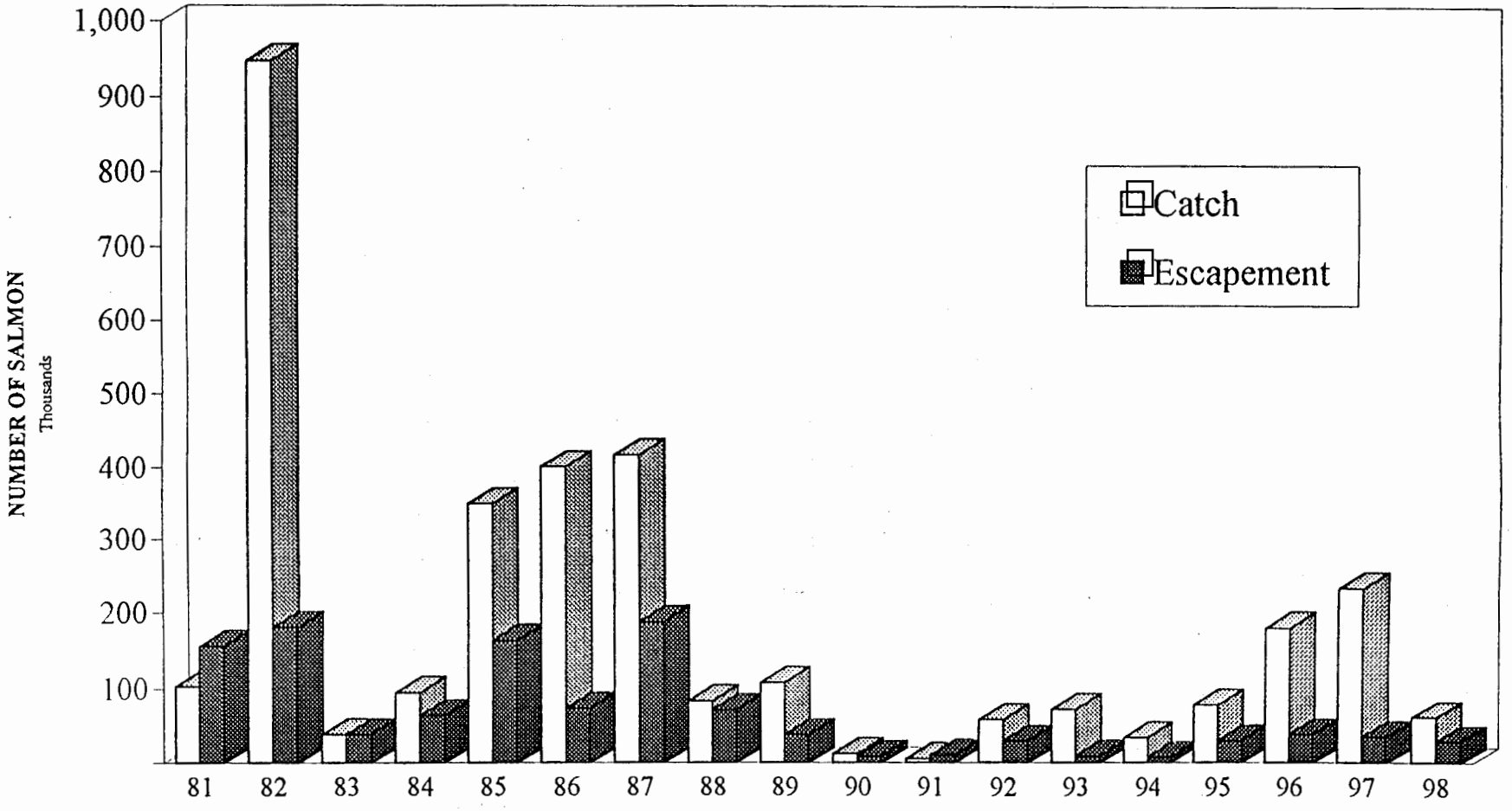
Appendix C.5. Salmon escapement by species in the Coghill District, Prince William Sound, 1970 - 1998.

Year	Sockeye[a]	Pink[b]	Chum[b]
1970	35,200	95,170	11,880
1971	15,000	62,160	6,600
1972	51,000	30,960	28,160
1973	55,000	493,780	72,610
1974	22,333	56,940	29,280
1975	34,855	452,430	3,640
1976	9,056	57,090	25,670
1977	31,562	130,510	43,940
1978	42,284	85,450	18,160
1979	48,281	70,980	6,330
1980	142,253	214,930	23,340
1981	156,112	106,450	2,050
1982	180,314	368,380	22,130
1983	38,783	310,330	61,410
1984	63,622	429,450	19,690
1985	163,311	296,970	22,140
1986	71,095	101,600	13,140
1987	187,263	147,060	24,510
1988	72,052	37,070	39,240
1989	37,751	45,510	22,680
1990	8,949	49,110	26,020
1991	9,752	98,580	6,070
1992	29,642	23,611	10,003
1993	9,232	41,837	8,430
1994	7,264	65,648	14,176
1995	30,382	46,029	11,596
1996	38,693	104,781	19,669
1997	35,517	52,961	3,101
1998	28,923	85,968	22,764
10 Year Average (1988-1997)	27,923	56,514	16,099

[a] Escapement count of sockeye salmon past the Coghill River weir.

[b] Pink and chum escapements estimated for streams in district by aerial surveys. Historical data revised in 1990.

SOCKEYE SALMON CATCH AND ESCAPEMENT IN THE COGHILL DISTRICT



Appendix C.6. Sockeye salmon catch and escapement in the Coghill District, Prince William Sound, 1981 - 98.

Appendix C.7 Temporally stratified age and sex composition of sockeye salmon harvested in the Coghill District commercial common property drift gillnet fisheries, 1998.

		Brood Year and Age Class								
		1995	1994			1993		1992		
		1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	Total
Stratum dates:	06/15 - 06/23									
Sampling dates:	06/23 - 06/23									
Sample size:	386									
Female	Percentage of sample	0.0	0.5	1.3	0.0	51.3	0.5	0.0	2.1	55.7
	Number in catch	0	21	51	0	2,032	21	0	82	2,207
Male	Percentage of sample	0.0	0.3	2.6	0.0	39.1	1.8	0.3	0.3	44.3
	Number in catch	0	10	103	0	1,550	72	10	10	1,755
Total	Percentage of sample	0.0	0.8	3.9	0.0	90.4	2.3	0.3	2.3	100.0
	Number in catch	0	31	154	0	3,582	92	10	92	3,962
	Standard error	0	18	39	0	59	30	10	30	
Stratum dates:	06/24 - 07/01									
Sampling dates:	07/01 - 07/01									
Sample size:	538									
Female	Percentage of sample	0.0	0.4	0.7	0.0	45.2	0.2	0.0	1.3	47.8
	Number in catch	0	65	129	0	7,850	32	0	226	8,302
Male	Percentage of sample	0.0	0.0	2.8	0.0	49.1	0.2	0.0	0.2	52.2
	Number in catch	0	0	485	0	8,528	32	0	32	9,078
Total	Percentage of sample	0.0	0.4	3.5	0.0	94.2	0.4	0.0	1.5	100.0
	Number in catch	0	65	614	0	16,379	65	0	258	17,380
	Standard error	0	46	138	0	175	46	0	91	
Stratum dates:	07/02 - 09/26									
Sampling dates:	07/07 - 07/07									
Sample size:	410									
Female	Percentage of sample	0.0	0.0	1.0	0.0	56.1	0.0	0.0	0.7	57.8
	Number in catch	0	0	372	0	21,385	0	0	279	22,036
Male	Percentage of sample	0.2	0.0	2.7	0.2	38.8	0.0	0.2	0.0	42.2
	Number in catch	93	0	1,023	93	14,784	0	93	0	16,085
Total	Percentage of sample	0.2	0.0	3.7	0.2	94.9	0.0	0.2	0.7	100.0
	Number in catch	93	0	1,395	93	36,168	0	93	279	38,121
	Standard error	93	0	354	93	416	0	93	161	
Strata Combined:	06/15 - 09/26									
Sampling dates:	06/23 - 07/07									
Sample Size:	1,334									
Female	Percentage of Sample	0.0	0.1	0.9	0.0	52.6	0.1	0.0	1.0	54.7
	Number in catch	0	85	552	0	31,267	53	0	587	32,545
Male	Percentage of Sample	0.2	0.0	2.7	0.2	41.8	0.2	0.2	0.1	45.3
	Number in catch	93	10	1,610	93	24,862	104	103	43	26,918
Total	Percentage of Sample	0.2	0.2	3.6	0.2	94.4	0.3	0.2	1.1	100.0
	Number in catch	93	95	2,162	93	56,129	157	103	630	59,463
	Standard error	93	49	382	93	455	55	94	187	

Appendix C.8 Temporally stratified age and sex composition of the sockeye salmon escapement through the Coghill River weir, 1998.

		Brood Year and Age Class							
		1995	1994		1993		1992		
		1.1	1.2	2.1	1.3	2.2	1.4	2.3	Total
Stratum dates:	06/17 - 07/10								
Sampling dates:	07/01 - 07/05								
Sample size:	442								
Female	Percentage of sample	0.0	3.2	0.0	38.7	0.5	0.0	2.3	44.6
	Number in escapement	0	174	0	2,123	25	0	124	2,446
Male	Percentage of sample	4.1	5.7	0.7	41.2	0.7	0.5	2.5	55.2
	Number in escapement	223	310	37	2,260	37	25	137	3,030
Total	Percentage of sample	4.1	8.8	0.7	80.1	1.1	0.5	4.8	100.0
	Number in escapement	223	484	37	4,395	62	25	261	5,488
	Standard error	52	74	21	104	28	18	56	
Stratum dates:	07/11 - 07/18								
Sampling dates:	07/14 - 07/15								
Sample size:	453								
Female	Percentage of sample	0.0	1.5	0.0	45.0	0.2	0.0	1.5	48.3
	Number in escapement	0	119	0	3,482	17	0	119	3,738
Male	Percentage of sample	4.6	1.8	0.7	41.5	0.4	0.7	2.0	51.7
	Number in escapement	358	137	51	3,209	34	51	154	3,994
Total	Percentage of sample	4.6	3.3	0.7	86.5	0.7	0.7	3.5	100.0
	Number in escapement	358	256	51	6,691	51	51	273	7,732
	Standard error	76	65	29	124	29	29	67	
Stratum dates:	07/19 - 08/05								
Sampling dates:	07/21 - 07/22								
Sample size:	457								
Female	Percentage of sample	0.0	1.1	0.2	51.9	0.0	0.4	2.0	55.6
	Number in escapement	0	172	34	8,164	0	69	310	8,750
Male	Percentage of sample	0.9	0.9	0.4	41.4	0.0	0.2	0.7	44.4
	Number in escapement	138	138	69	6,511	0	34	103	6,993
Total	Percentage of sample	0.9	2.0	0.7	93.2	0.0	0.7	2.6	100.0
	Number in escapement	138	310	103	14,675	0	103	413	15,743
	Standard error	69	102	60	185	0	60	118	
Strata Combined:	06/17 - 08/05								
Sampling dates:	07/01 - 07/22								
Sample Size:	1,352								
Female	Percentage of sample	0.0	1.6	0.1	47.5	0.1	0.2	1.9	51.6
	Number in escapement	0	466	34	13,769	42	69	554	14,934
Male	Percentage of sample	2.5	2.0	0.5	41.4	0.2	0.4	1.4	48.4
	Number in escapement	720	585	157	11,979	71	110	394	14,017
Total	Percentage of sample	2.5	3.6	0.7	88.9	0.4	0.6	3.3	100.0
	Number in escapement	720	1,050	192	25,761	113	179	947	28,963
	Standard error	115	142	70	246	40	69	147	

Appendix C.9. Commercial salmon harvest by period in the Unakwik District drift gillnet and purse seine fisheries, Prince William Sound, 1998.

					Chinook		Sockeye		Coho		Pink		Chum	
Period	Date [a,b]	Hours	Permits	Landings	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds
DRIFT GILLNET [c]														
1	6/22	24	6	6	0	0	1,602	11,026	0	0	0	0	1	8
2	6/25	24	13	21	1	36	2,393	14,431	0	0	1	4	10	66
3	6/29	24	8	10	2	36	1,622	10,544	0	0	1	4	4	40
4	7/03	24	9	13	0	0	2,258	14,190	1	5	37	129	4	20
5	7/06	24	9	9	1	10	2,506	15,935	0	0	10	40	19	90
6	7/09	24	8	9	1	15	1,264	8,481	0	0	80	320	28	275
7	7/13	24	15	17	3	47	1,114	7,059	6	55	791	3,164	187	1,872
8	7/16	24	10	12	2	41	547	3,460	44	208	450	1,862	230	2,277
9	7/20	24	9	9	0	0	345	2,185	4	29	562	2,244	103	989
10	7'23	24	0	0	0	0	0	0	0	0	0	0	0	0
11	7/27	24	0	0	0	0	0	0	0	0	0	0	0	0
12	7/30	24	0	0	0	0	0	0	0	0	0	0	0	0
Total		288	34	106	10	185	13,651	87,311	55	297	1,932	7,767	586	5,637
Average Weight						18.50		6.40		5.40		4.02		9.62

[a] For area and opening times refer to Appendix C.11.

[b] Starting date of period.

[c] No purse seine catch reported in 1998.

Appendix C.10. Commercial salmon catch by species in the Unakwik District, Prince William Sound, 1980 - 1998.

	CATCH BY SPECIES					
Year	Chinook	Sockeye	Coho	Pink	Chum	Total
DRIFT GILLNET						
1980	0	1,547	6	4,815	727	7,095
1981	0	2,445	0	4,152	1,330	7,927
1982	1	48,947	0	335	598	49,881
1983	3	13,215	0	1,515	1,426	16,159
1984	2	18,522	0	27,742	7,125	53,391
1985	26	27,532	22	9,191	3,942	40,713
1986	5	25,759	1	1,973	2,463	30,201
1987	2	5,894	1	4,871	1,356	12,124
1988	15	8,589	0	281	1,504	10,389
1989	31	21,412	27	41,820	404	63,694
1990	3	247	127	9,986	23	10,386
1991	13	4,482	11	12,299	118	16,923
1992	3	2,224	13	3,972	94	6,306
1993	5	14,691	4	3,338	978	19,016
1994	0	548	0	300	0	848
1995	8	2,116	0	1	36	2,161
1996	3	6,063	0	17	694	6,777
1997	3	3,411	0	0	177	3,591
1998	10	13,651	55	1,932	586	16,234
Ten Year Average (1988-97)	8	6,378	18	7,201	403	14,009
PURSE SEINE						
1980	0	6	0	9,113	355	9,474
1981	0	108	0	71,624	17,650	89,382
1982	0	2	4	89,137	517	89,660
1983	0	6	0	3,344	716	4,066
1986[a]						
1985	0	138	0	28,210	4,123	32,471
1986	0	76	0	4,718	4,675	9,469
1987	0	146	0	187,752	6,549	194,447
1988	0	667	7	57,844	23,860	82,378
1989[a]						
1990[a]						
1991	0	819	3	121,068	79	121,969
1992	0	42	2	13,264	119	13,427
1993	0	79	0	3,233	67	3,379
1994	0	226	102	388,901	73	389,302
1995[a]						
1996[a]						
1997[a]						
1998[a]						
Ten Year Average (1988-97)	0	367	23	116,862	4,840	122,091
COMBINED GEARS						
1980	0	1,553	6	13,928	1,082	16,569
1981	0	2,553	0	75,776	18,980	97,309
1982	1	48,949	4	89,472	1,115	139,541
1983	3	13,221	0	4,859	2,142	20,225
1984	2	18,522	0	27,742	7,125	53,391
1985	26	27,670	22	37,401	8,065	73,184
1986	5	25,835	1	6,691	7,138	39,670
1987	2	6,040	1	192,623	7,905	206,571
1988	15	9,256	7	58,125	25,364	92,767
1989	31	21,412	27	41,820	404	63,694
1990	3	247	127	9,986	23	10,386
1991	13	5,301	14	133,367	197	138,892
1992	3	2,266	15	17,236	213	19,733
1993	5	14,770	4	6,571	1,045	22,395
1994	0	774	102	389,201	73	390,150
1995	8	2,116	0	1	36	2,161
1996	3	6,063	0	17	694	6,777
1997	3	3,411	0	0	177	3,591
1998	10	13,651	55	1,932	586	16,234
Ten Year Average (1988-97)	8	6,562	30	65,632	2,823	75,055

[a]No catch recorded.

Appendix C.11. Summary of periods, dates, hours open, and emergency orders issued for the commercial salmon fisheries in the Coghill and Unakwik Districts, Prince William Sound, 1998.

Unakwik (229)					Coghill (223)				
Periods			Hours	Emergency Orders	Periods			Hours	Emergency Orders
P/S	GN	Dates	Open	Issued	P/S	GN	Dates	Open	Issued
						1	6/15 - 6/16	24	2-F-E-33-98 [a]
						2	6/19	12	2-F-E-34-98 [a]
1	1	6/22 - 6/23	24	2-F-E-35-98 [b]		3	6/22	12	2-F-E-37-98 [a]
2	2	6/25 - 6/26	24			4	6/25 - 6/26	36	2-F-E-39-98 [c]
3	3	6/29 - 6/30	24			5	6/29 - 6/30	24	2-F-E-40-98 [c]
4	4	7/02 - 7/03	24			6	7/02 - 7/03	24	2-F-E-42-98 [d]
5	5	7/06 - 7/07	24			7	7/06 - 7/07	24	2-F-E-43-98 [e]
6	6	7/09 - 7/10	24			8	7/09 - 7/10	24	2-F-E-46-98 [e]
7	7	7/13 - 7/14	24		1	9	7/23 - 7/24	24	2-F-E-54-98 [e]
8	8	7/16 - 7/17	24		2	10	7/27 - 7/28	24	2-F-E-59-98 [f]
9	9	7/20 - 7/21	24		3	11	7/31	12	2-F-E-63-98 [h]
10	10	7/23 - 7/24	24		4	12	8/06	12	2-F-E-76-98 [i]
11	11	7/27 - 7/28	24		5	13	8/09	12	2-F-E-71-98 [j]
12	12	7/30 - 7/31	24	2-F-E-58-98 [g]	6	14	8/11	12	2-F-E-73-98 [j]
					7	15	8/13	12	2-F-E-75-98 [j]
					8	16	8/15	12	2-F-E-77-98 [j]
					9	17	8/17	12	2-F-E-79-98 [j]
					10	18	8/19	12	2-F-E-80-98 [k]
					11	19	8/20 - 8/21	36	2-F-E-81-98 [k]
					12	20	8/22 - 8/23	36	2-F-E-85-98 [k]
					13	21	8/24 - 8/25	36	2-F-E-85-98 [k]
					14	22	8/26 - 8/27	36	2-F-E-86-98 [k]
					15	23	8/28 - 8/29	36	2-F-E-87-98 [l]
					16	24	8/30 - 8/31	36	2-F-E-87-98 [l]
					17	25	9/01 - 9/02	36	2-F-E-87-98 [l]
					18	26	9/03 - 9/04	36	2-F-E-88-98 [l]
					19	27	9/05 - 9/06	36	2-F-E-88-98 [l]
					20	28	9/07 - 9/08	36	2-F-E-88-98 [l]
					21	29	9/09 - 9/10	36	2-F-E-88-98 [l]
					22	30	9/11 - 9/12	36	2-F-E-88-98 [l]
					23	31	9/13 - 9/30	420	2-F-E-92-98 [m]
					24	32	9/30 - 10/04	96	2-F-E-93-98 [n]

[a] The general waters of the Coghill District south of a line at 61° 00' 00" N. Lat., excluding the waters of the Noerenberg Hatchery Terminal Harvest Area (THA) and the Special Harvest Area (SHA) were open.

[b] The Unakwik District season was opened to commercial fishing and a schedule of two 24-hour periods per week was established beginning June 22. The schedule was from 8:00 a.m. Monday until 8:00 a.m. Tuesday and from 8:00 p.m. Thursday until 8:00 p.m. Friday.

-Continued-

[c] The general waters of the Coghill District south of a line at 61° 00' 00" N. Lat., excluding the waters of the Esther Subdistrict and the Noerenberg Hatchery THA and SHA opened for a 24-hour period. The Esther Subdistrict, excluding the THA and SHA, was open for the first 12-hours of the period.

[d] The general waters of the Coghill District south of a line at 61° 00' 00" N. Lat., excluding the waters of the Esther Subdistrict and the Noerenberg Hatchery THA and SHA were open for a 24-hour period.

[e] The general waters of the Coghill District, excluding the waters of the Esther Subdistrict and the Noerenberg Hatchery THA and SHA were open.

[f] The general waters of the Coghill District, including the waters of the Esther Subdistrict and the Noerenberg Hatchery THA and SHA to a line of buoys in front of the barrier seine were open.

[g] The Unakwik District closed for the 1998 season effective 8:00 p.m. Friday, July 31.

[h] Open waters included the Coghill District, except for the Esther Subdistrict and the Noerenberg Hatchery THA and SHA.

[i] The Coghill District, including the Esther Subdistrict and Noerenberg Hatchery THA and SHA were open.

[j] Open waters included the Coghill District except for the Esther Subdistrict and the Noerenberg Hatchery THA and SHA. The waters of Pigot Bay, Hummer Bay and Bettles Bay, inside the yellow regulatory markers were also closed.

[k] Within the Coghill District, only the Esther Subdistrict was open.
The Noerenberg Hatchery THA and SHA were closed.

[l] Open waters, within the Coghill District, included only the Esther Subdistrict up to a line a buoys in front of the Noerenberg Hatchery barrier seine.

[m] Within the Coghill District, only the waters of the Noerenberg Hatchery THA and SHA, up to a line of buoys in front of the barrier seine, were open.

[n] Within the Coghill District, only the waters of the Noerenberg Hatchery THA and SHA were open.

APPENDIX D: ESHAMY DISTRICT

Appendix D.1. Commercial salmon harvest by period in the Eshamy District drift gillnet and set gillnet fisheries, Prince William Sound, 1998.

Period	Date[a,b]	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
					Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds
DRIFT GILLNET														
1	7/30	36	148	276	1	14	84,526	521,595	38	323	8,024	28,691	64	519
2	8/03	36	64	107	0	0	2,927	19,268	68	568	19,659	64,602	114	836
3	8/06	36	46	81	0	0	4,476	30,202	39	340	6,100	20,286	48	355
4	8/10	36	38	68	0	0	1,819	11,350	23	203	24,276	85,092	81	663
5	8/13	36	24	47	1	14	2,425	15,522	25	213	17,903	58,961	16	134
6	8/17	36	10	16	0	0	755	4,864	32	275	12,213	42,262	15	113
7	8/20	36	16	27	0	0	1,074	6,949	27	258	12,893	46,514	5	42
8	8/24	36	0	0	0	0	0	0	0	0	0	0	0	0
9	8/27	36	0	0	0	0	0	0	0	0	0	0	0	0
10	8/31	36	0	0	0	0	0	0	0	0	0	0	0	0
11	9/03	36	0	0	0	0	0	0	0	0	0	0	0	0
12	9/07	36	0	0	0	0	0	0	0	0	0	0	0	0
13	9/10	36	0	0	0	0	0	0	0	0	0	0	0	0
14	9/14	36	0	0	0	0	0	0	0	0	0	0	0	0
15	9/17	36	0	0	0	0	0	0	0	0	0	0	0	0
16	9/21	36	0	0	0	0	0	0	0	0	0	0	0	0
17	9/24	36	0	0	0	0	0	0	0	0	0	0	0	0
Total		612	157	622	2	28	98,002	609,750	252	2,180	101,068	346,408	343	2,662
Average Weight						14.00		6.22		8.65		3.43		7.76
SET GILLNET														
1	7/30	36	16	65	0	0	12,314	77,017	11	88	1,792	6,986	54	365
2	8/03	36	14	48	1	20	5,761	35,613	13	114	6,203	22,560	60	454
3	8/06	36	11	30	0	0	2,011	12,821	7	67	1,245	4,422	39	299
4	8/10	36	11	27	0	0	2,880	18,373	11	104	8,116	27,391	36	300
5	8/13	36	5	11	0	0	924	5,730	31	284	6,647	24,524	9	70
6	8/17	36	5	10	0	0	1,518	9,757	18	162	8,206	26,937	14	99
7	8/20	36	1	2	0	0	125	800	0	0	1,707	6,170	2	16
8	8/24	36	0	0	0	0	0	0	0	0	0	0	0	0
9	8/27	36	0	0	0	0	0	0	0	0	0	0	0	0
10	8/31	36	0	0	0	0	0	0	0	0	0	0	0	0
11	9/03	36	0	0	0	0	0	0	0	0	0	0	0	0
12	9/07	36	0	0	0	0	0	0	0	0	0	0	0	0
13	9/10	36	0	0	0	0	0	0	0	0	0	0	0	0
14	9/14	36	0	0	0	0	0	0	0	0	0	0	0	0
15	9/17	36	0	0	0	0	0	0	0	0	0	0	0	0
16	9/21	36	0	0	0	0	0	0	0	0	0	0	0	0
17	9/24	36	0	0	0	0	0	0	0	0	0	0	0	0
Total		612	16	193	1	20	25,533	160,111	91	819	33,916	118,990	214	1,603
Average Weight						20.00		6.27		9.00		3.51		7.49
COMBINED GEAR														
1	7/30	36	164	341	1	14	96,840	598,612	49	411	9,816	35,677	118	884
2	8/03	36	78	155	1	20	8,688	54,881	81	682	25,862	87,162	174	1,290
3	8/06	36	57	111	0	0	6,487	43,023	46	407	7,345	24,708	87	654
4	8/10	36	49	95	0	0	4,699	29,723	34	307	32,392	112,483	117	963
5	8/13	36	29	58	1	14	3,349	21,252	56	497	24,550	83,485	25	204
6	8/17	36	15	26	0	0	2,273	14,621	50	437	20,419	69,199	29	212
7	8/20	36	17	29	0	0	1,199	7,749	27	258	14,600	52,684	7	58
8	8/24	36	0	0	0	0	0	0	0	0	0	0	0	0
9	8/27	36	0	0	0	0	0	0	0	0	0	0	0	0
10	8/31	36	0	0	0	0	0	0	0	0	0	0	0	0
11	9/03	36	0	0	0	0	0	0	0	0	0	0	0	0
12	9/07	36	0	0	0	0	0	0	0	0	0	0	0	0
13	9/10	36	0	0	0	0	0	0	0	0	0	0	0	0
14	9/14	36	0	0	0	0	0	0	0	0	0	0	0	0
15	9/17	36	0	0	0	0	0	0	0	0	0	0	0	0
16	9/21	36	0	0	0	0	0	0	0	0	0	0	0	0
17	9/24	36	0	0	0	0	0	0	0	0	0	0	0	0
Total		576		815	3	48	123,535	769,861	343	2,999	134,984	465,398	557	4,265
Average Weight						16.00		6.23		8.74		3.45		7.66

[a] Starting date of period.

[b] For area and opening times refer to Appendix D.5.

Appendix D.2. Commercial salmon harvest by period in the Eshamy District drift gillnet and set gillnet fisheries, Prince William Sound, 1998.

					Chinook		Sockeye		Coho		Pink		Chum	
Period	Date[a,b]	Hours	Permits	Landings	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds
DRIFT GILLNET														
1	7/30	36	148	276	1	14	84,526	521,595	38	323	8,024	28,691	64	519
2	8/03	36	64	107	0	0	2,927	19,268	68	568	19,659	64,602	114	836
3	8/06	36	46	81	0	0	4,476	30,202	39	340	6,100	20,286	48	355
4	8/10	36	38	68	0	0	1,819	11,350	23	203	24,276	85,092	81	663
5	8/13	36	24	47	1	14	2,425	15,522	25	213	17,903	58,961	16	134
6	8/17	36	10	16	0	0	755	4,864	32	275	12,213	42,262	15	113
7	8/20	36	16	27	0	0	1,074	6,949	27	258	12,893	46,514	5	42
8	8/24	36	0	0	0	0	0	0	0	0	0	0	0	0
9	8/27	36	0	0	0	0	0	0	0	0	0	0	0	0
10	8/31	36	0	0	0	0	0	0	0	0	0	0	0	0
11	9/03	36	0	0	0	0	0	0	0	0	0	0	0	0
12	9/07	36	0	0	0	0	0	0	0	0	0	0	0	0
13	9/10	36	0	0	0	0	0	0	0	0	0	0	0	0
14	9/14	36	0	0	0	0	0	0	0	0	0	0	0	0
15	9/17	36	0	0	0	0	0	0	0	0	0	0	0	0
16	9/21	36	0	0	0	0	0	0	0	0	0	0	0	0
17	9/24	36	0	0	0	0	0	0	0	0	0	0	0	0
Total		612	157	622	2	28	98,002	609,750	252	2,180	101,068	346,408	343	2,662
Average Weight						14.00		6.22		8.65		3.43		7.76
SET GILLNET														
1	7/30	36	16	65	0	0	12,314	77,017	11	88	1,792	6,986	54	365
2	8/03	36	14	48	1	20	5,761	35,613	13	114	6,203	22,560	60	454
3	8/06	36	11	30	0	0	2,011	12,821	7	67	1,245	4,422	39	299
4	8/10	36	11	27	0	0	2,880	18,373	11	104	8,116	27,391	36	300
5	8/13	36	5	11	0	0	924	5,730	31	284	6,647	24,524	9	70
6	8/17	36	5	10	0	0	1,518	9,757	18	162	8,206	26,937	14	99
7	8/20	36	1	2	0	0	125	800	0	0	1,707	6,170	2	16
8	8/24	36	0	0	0	0	0	0	0	0	0	0	0	0
9	8/27	36	0	0	0	0	0	0	0	0	0	0	0	0
10	8/31	36	0	0	0	0	0	0	0	0	0	0	0	0
11	9/03	36	0	0	0	0	0	0	0	0	0	0	0	0
12	9/07	36	0	0	0	0	0	0	0	0	0	0	0	0
13	9/10	36	0	0	0	0	0	0	0	0	0	0	0	0
14	9/14	36	0	0	0	0	0	0	0	0	0	0	0	0
15	9/17	36	0	0	0	0	0	0	0	0	0	0	0	0
16	9/21	36	0	0	0	0	0	0	0	0	0	0	0	0
17	9/24	36	0	0	0	0	0	0	0	0	0	0	0	0
Total		612	16	193	1	20	25,533	160,111	91	819	33,916	118,990	214	1,603
Average Weight						20.00		6.27		9.00		3.51		7.49
COMBINED GEAR														
1	7/30	36	164	341	1	14	96,840	598,612	49	411	9,816	35,677	118	884
2	8/03	36	78	155	1	20	8,688	54,881	81	682	25,862	87,162	174	1,290
3	8/06	36	57	111	0	0	6,487	43,023	46	407	7,345	24,708	87	654
4	8/10	36	49	95	0	0	4,699	29,723	34	307	32,392	112,483	117	963
5	8/13	36	29	58	1	14	3,349	21,252	56	497	24,550	83,485	25	204
6	8/17	36	15	26	0	0	2,273	14,621	50	437	20,419	69,199	29	212
7	8/20	36	17	29	0	0	1,199	7,749	27	258	14,600	52,684	7	58
8	8/24	36	0	0	0	0	0	0	0	0	0	0	0	0
9	8/27	36	0	0	0	0	0	0	0	0	0	0	0	0
10	8/31	36	0	0	0	0	0	0	0	0	0	0	0	0
11	9/03	36	0	0	0	0	0	0	0	0	0	0	0	0
12	9/07	36	0	0	0	0	0	0	0	0	0	0	0	0
13	9/10	36	0	0	0	0	0	0	0	0	0	0	0	0
14	9/14	36	0	0	0	0	0	0	0	0	0	0	0	0
15	9/17	36	0	0	0	0	0	0	0	0	0	0	0	0
16	9/21	36	0	0	0	0	0	0	0	0	0	0	0	0
17	9/24	36	0	0	0	0	0	0	0	0	0	0	0	0
Total		576		815	3	48	123,535	769,861	343	2,999	134,984	465,398	557	4,265
Average Weight						16.00		6.23		8.74		3.45		7.66

[a] Starting date of period.

[b] For area and opening times refer to Appendix D.5.

Appendix D.3. Salmon escapement by species at the Eshamy weir, Prince William Sound, 1967-98.

Year	Escapement by Species					Total
	Chinook	Sockeye	Coho	Pink	Chum	
1967	0	10,821	192	10,433	1	21,447
1968	1	68,048	450	919	1	69,419
1969	0	61,196	96	3,095	2	64,389
1970	0	11,460	25	387	0	11,872
1971[a]	0	954	97	3,179	0	4,230
1972[b]		28,683				28,683
1973	0	10,202	205	1,698	0	12,105
1974[b]		633				633
1975[b]		1,724				1,724
1976[b]		19,367				19,367
1977	0	11,746	230	32,080	0	44,056
1978	0	12,580	20	552	0	13,152
1979	0	12,169	5	3,654	1	15,829
1980	5	44,263	128	963	2	45,361
1981	1	23,048	249	5,956	13	29,267
1982	0	6,782	79	1,056	79	7,996
1983	0	10,348	40	7,047	4	17,439
1984	2	36,121	881	3,970	0	40,974
1985	0	26,178	96	6,271	0	32,545
1986	2	6,949	55	1,004	31	8,041
1987[c]						
1988	2	31,747	48	1,205	1	33,003
1989	1	57,232	0	6,283	210	63,726
1990	0	14,477	43	2,209	5	16,734
1991	2	46,229	907	31,241	17	78,396
1992	1	36,237	52	3,004	5	39,299
1993	1	42,893	92	3,435	9	46,430
1994	1	64,660	1,184	12,061	87	77,993
1995	7	21,701	1,076	18,601	407	41,792
1996	2	5,271	108	7,959	9	13,349
1997	2	39,015	111	15,142	18	54,288
1998[c]						
10 Year Average (1988-1997)	2	35,946	362	10,114	77	46,501

[a] Enumeration low due to holes in weir. Actual escapement is estimated to be more than 3,000.

[b] Incidental passage of salmon other than sockeye was not recorded for each year.

[c] The Eshamy weir was not in operation for the year.

Appendix D.4. Estimated age and sex composition of sockeye salmon harvested in the Main Bay Subdistrict, Eshamy District commercial common property gillnet fishery, 1998.

		Brood Year and Age Class				
		1995	1994	1993		
		0.2	1.2	1.3	2.2	Total
Stratum dates:	07/30 - 08/21					
Sampling dates:	08/01 - 08/01					
Sample size:	107					
Female	Percentage of sample	0.9	10.3	66.4	1.9	79.4
	Number in catch	1,155	12,700	81,972	2,309	98,135
Male	Percentage of sample	0.0	6.5	14.0	0.0	20.6
	Number in catch	0	8,082	17,318	0	25,400
Total	Percentage of sample	0.9	16.8	80.4	1.9	100.0
	Number in catch	1,155	20,782	99,290	2,309	123,535
	Standard error	1,155	4,488	4,766	1,625	

Appendix D.5. Summary of periods, dates, hours open, and emergency orders issued for the commercial salmon fisheries in the Eshamy District, Prince William Sound, 1998.

Main Bay Subdistrict (225-21)			Crafton Island Subdistrict (225-10, 20, 30)			Emergency
Periods	Dates	Hours Open	Periods	Dates	Hours Open	Orders Issued
1	7/30 - 8/01	36				2-F-E-59-98[a]
2	8/03 - 8/04	36				2-F-E-65-98
3	8/06 - 8/08	36				2-F-E-68-98
4	8/10 - 8/11	36				2-F-E-70-98
5	8/13 - 8/15	36				2-F-E-72-98
6	8/17 - 8/18	36				2-F-E-74-98[b]
7	8/20 - 8/22	36				
8	8/24 - 8/25	36				
9	8/27 - 8/29	36				
10	8/31 - 9/01	36				
11	9/03 - 9/05	36				2-F-E-83-98[c]
12	9/07 - 9/08	36				
13	9/10 - 9/12	36				
14	9/14 - 9/15	36				
15	9/17 - 9/19	36				
16	9/21 - 9/22	36				
17	9/24 - 9/26	36				

[a] The Eshamy District opened for the season to commercial fishing. The area open included all waters of the Main Bay Subdistrict. The Alternating Gear Zone (AGZ) was open to drift gillnet gear for the first period and alternated between set and drift gillnet gear with each period. Periods, unless otherwise specified, began at 8:00 a.m. Mondays and 8:00 p.m. Thursdays.

[b] The Main Bay Subdistrict went on a schedule of two 36-hour periods per week. The periods were from 8:00 a.m. Monday until 8:00 p.m. Tuesday and from 8:00 p.m. Thursday until 8:00 a.m.Saturday. The AGZ will be open to set gillnet gear during Monday's 36-hour period and to drift gillnet gear during Thursday's 36-hour period.

[c] The Eshamy District closed for the season effective at 8:01 a.m. Saturday, September 26 1998.

APPENDIX E: PRINCE WILLIAM SOUND PURSE SEINE DISTRICTS

Appendix E.1. Prince William Sound commercial purse seine salmon harvest by day, 1998.

Catch Date	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
			Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds
06/05[a]	1	1	0	0	0	0	0	0	0	0	2,500	24,912
06/08[a]	3	3	0	0	0	0	0	0	0	0	7,021	70,268
06/09[a]	3	3	0	0	0	0	0	0	0	0	4,050	48,600
06/10[a]	5	6	5	92	0	0	0	0	0	0	8,190	81,955
06/12[a]	12	14	0	0	0	0	0	0	0	0	13,575	144,212
06/13[a]	6	7	0	0	0	0	0	0	0	0	6,455	70,681
06/14[a]	9	9	0	0	0	0	0	0	0	0	8,403	80,668
06/15[a]	12	12	1	18	0	0	0	0	0	0	5,517	49,183
06/16[a]	21	22	12	204	170	1,507	0	0	0	0	7,355	69,371
06/17[a]	11	12	2	23	0	0	0	0	0	0	4,004	35,686
06/18[a]	15	15	3	88	0	0	0	0	0	0	7,324	64,173
06/19[a]	17	17	17	369	4	27	0	0	0	0	6,932	60,894
06/20[a]	4	4	1	15	0	0	0	0	0	0	823	8,077
06/21[a]	24	24	7	163	0	0	0	0	0	0	7,586	68,235
06/22[a]	9	11	1	10	0	0	0	0	0	0	3,827	33,214
06/23[a]	22	22	4	81	1	7	0	0	0	0	10,688	97,672
06/24[a]	9	11	2	18	0	0	0	0	0	0	2,962	25,727
06/25[a]	19	19	4	68	1	4	0	0	0	0	5,067	48,196
06/26[a]	20	22	4	75	1	5	0	0	0	0	6,975	62,396
06/27[a]	5	6	2	22	0	0	0	0	0	0	1,047	9,481
06/28[a]	18	18	8	102	669	6,011	0	0	0	0	5,770	56,509
06/29[a]	6	6	0	0	0	0	0	0	0	0	931	9,330
06/30[a]	16	16	3	85	0	0	1	6	2	6	5,887	53,330
07/01[a]	5	5	2	60	0	0	0	0	0	0	1,771	14,184
07/02[a]	8	9	1	29	5	37	0	0	6,451	22,578	2,918	27,713
07/03[a]	12	12	3	107	88	483	0	0	6,355	24,032	4,708	43,676
07/04[a]	8	8	0	0	14	87	1	7	3,243	6,538	2,557	25,552
07/05[a]	8	8	0	0	0	0	0	0	1,757	4,093	2,110	21,144
07/06[b]	5	5	0	0	0	0	0	0	14	50	1,713	13,716
07/07[b]	7	7	0	0	0	0	2	18	45	156	4,828	38,628
07/08[c]	62	65	4	57	1,327	8,098	718	5,201	126,527	485,774	9,998	78,308
07/09[b]	5	5	0	0	0	0	0	0	0	0	8,129	81,337
07/10[b]	5	6	0	0	0	0	3	24	209	720	5,315	42,521
07/11[b]	6	7	0	0	0	0	0	0	277	554	7,082	71,212
07/12[d]	76	81	9	189	1,175	7,072	841	6,432	236,290	883,035	18,331	145,006
07/13[b]	4	4	0	0	76	365	42	336	8,733	27,207	3,618	35,751
07/14[b]	5	5	1	34	1	2	6	61	2,116	4,232	4,835	48,389
07/15[b]	4	4	0	0	0	0	3	29	2,080	5,107	4,594	41,091
07/16[e]	96	107	17	216	819	4,975	692	5,365	509,915	1,915,344	12,865	106,306
07/17[b]	5	6	0	0	26	156	16	128	13,110	50,506	4,812	49,176
07/18[f]	96	98	16	311	1,339	7,943	1,048	7,971	276,951	1,068,043	16,521	129,605
07/19[b]	2	2	0	0	0	0	0	0	2,598	7,796	2,036	20,380
07/22[g]	100	105	4	86	1,241	7,565	1,594	11,618	333,618	1,258,782	21,575	170,883
07/23[h]	31	32	2	19	130	802	1,133	9,220	60,790	230,296	4,521	36,769
07/24[h]	42	44	9	151	680	4,215	1,220	9,878	118,458	451,722	9,506	76,337
07/25[i]	86	90	2	32	742	4,420	1,368	9,379	203,137	784,966	16,852	131,513
07/27[j]	92	100	7	135	901	5,442	1,649	12,338	270,784	1,023,115	22,525	179,750
07/28[k]	30	30	4	75	354	2,031	245	1,725	71,485	253,819	7,283	57,199
07/29[l]	102	106	4	65	681	4,156	2,128	14,954	302,613	1,128,575	15,000	118,169
07/31[m]	118	126	24	265	788	4,906	1,771	13,525	407,826	1,514,055	10,363	81,017
08/02[n]	123	137	6	93	970	5,976	1,388	9,272	657,636	2,431,150	12,583	107,269
08/04[o]	125	131	15	252	2,166	13,192	1,922	15,047	732,584	2,711,151	8,113	64,624
08/06[p]	132	162	10	171	1,410	8,534	1,756	13,586	1,100,021	4,089,663	6,645	52,935
08/09[q]	136	202	1	12	615	3,804	1,534	11,604	1,627,709	5,982,468	1,789	13,693
08/11[r]	137	184	3	30	443	2,639	882	6,673	1,229,588	4,456,658	838	6,351
08/13[s]	138	177	1	20	468	2,940	1,998	14,994	1,396,438	5,108,819	2,442	16,307
08/15[t]	140	203	1	46	553	3,569	1,165	9,417	1,572,868	5,806,962	234	1,726
08/17[t]	141	193	1	18	469	3,008	967	7,878	1,438,854	5,396,660	174	1,379
08/19[u]	105	145	0	0	279	1,672	3,471	25,696	1,091,838	3,909,791	2,877	17,909
08/20[v]	69	86	1	23	240	1,339	544	4,351	758,471	2,742,887	90	662
08/21[v]	81	115	0	0	548	3,179	3,519	24,395	862,403	3,133,032	1,466	9,276
08/22[w]	52	82	2	60	351	2,033	1,199	10,669	663,557	2,446,444	150	1,151
08/23[w]	79	102	1	10	354	2,149	3,181	29,681	688,906	2,491,664	1,581	13,705
08/24[w]	25	26	0	0	79	518	163	1,511	315,576	1,111,760	3	19
08/25[w]	51	62	0	0	67	458	306	2,409	368,420	1,332,718	29	258
08/26[x]	12	12	0	0	60	416	76	776	203,533	700,479	36	322

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Appendix E.1. (continued)

Catch Date	Permits	Landings	Chinook Numbers	Chinook Pounds	Sockeye Numbers	Sockeye Pounds	Coho Numbers	Coho Pounds	Pink Numbers	Pink Pounds	Chum Numbers	Chum Pounds
08/27[x]	16	20	0	0	18	112	92	641	183,076	650,141	4	24
08/28[y]	8	10	0	0	0	0	0	0	73,641	279,539	0	0
08/29[y]	12	13	0	0	48	302	53	391	199,789	674,028	7	44
08/30[y]	10	12	0	0	19	110	6	55	162,667	582,137	0	0
08/31[y]	12	13	0	0	18	116	32	201	142,218	499,687	0	0
09/01[y]	5	7	0	0	0	0	0	0	139,126	463,252	0	0
09/02[y]	13	13	0	0	0	0	0	0	140,483	509,344	0	0
09/03[z]	11	11	0	0	0	0	0	0	129,951	442,122	0	0
09/04[z]	6	8	0	0	0	0	0	0	125,236	452,491	0	0
09/05[z]	4	5	0	0	0	0	0	0	59,240	184,434	0	0
09/06[z]	2	4	0	0	0	0	0	0	70,861	286,991	0	0
09/07[z]	2	3	0	0	0	0	0	0	80,339	275,401	0	0
09/08[aa]	20	23	0	0	5	42	9,307	78,824	0	0	811	7,117
09/09[bb]	6	7	0	0	0	0	2,445	22,071	44,003	184,914	80	715
09/10[bb]	1	1	0	0	0	0	93	560	6,339	22,188	0	0
09/13[cc]	1	1	0	0	0	0	0	0	15,000	40,000	0	0
09/18[cc]	1	1	0	0	0	0	0	0	30,831	115,000	0	0
09/22[cc]	1	2	0	0	0	0	0	0	41,554	155,000	0	0
Total	149	3,530	227	3,999	20,413	126,424	50,580	398,917	19,318,140	70,820,076	399,207	3,473,588
Average Weights				17.62		6.19		7.89		3.67		8.70

[a] Within the Montague District, only the waters of the Port Chalmers Subdistrict were open. Regulatory waters and anadromous salmon stream closures were not in effect.

[b] Open waters within the Montague District included only the Port Chalmers Subdistrict. Stockdale Harbor regulatory waters and anadromous salmon stream closures were in effect. Port Chalmers regulatory waters closures were not in effect.

[c] Eastern District waters, south of the latitude of Black Point, were open. All anadromous salmon stream closures remained in effect.

Open waters within the Montague District included only the Port Chalmers Subdistrict. Stockdale Harbor regulatory waters and anadromous salmon stream closures were in effect. Port Chalmers regulatory waters closures were not in effect.

In the Southwestern District, only the waters of the Point Elrington Subdistrict were open. All anadromous stream closures remained in effect.

[d] Eastern District waters, south of the latitude of Black Point, were open. All anadromous salmon stream closures remained in effect.

Northern District waters east of the longitude of Unakwik Point were open. All anadromous salmon stream closures were not in effect.

Open waters within the Montague District included only the Port Chalmers Subdistrict. Stockdale Harbor regulatory waters and anadromous salmon stream closures were in effect. Port Chalmers regulatory waters closures were not in effect.

In the Southwestern District, only the waters of the Point Elrington Subdistrict were open. All anadromous stream closures remained in effect.

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[e] Waters of the Eastern District west of 146° 30.62' W. longitude within Port Valdez were open.
All anadromous salmon stream closures remained in effect.
Northern District waters east of the longitude of Unakwik Point were open. All anadromous salmon stream closures were not in effect.
Open waters within the Montague District included only the Port Chalmers Subdistrict. Stockdale Harbor regulatory waters and anadromous salmon stream closures were in effect. Port Chalmers regulatory waters closures were not in effect.
In the Southwestern District, only the waters of the Point Elrington Subdistrict were open. All anadromous stream closures remained in effect.

[f] Within the Eastern District, only the waters of Valdez Arm south of a line from Tongue Point to the yellow regulatory marker at the southern entrance of Sawmill Bay were open. Jack Bay and the waters of Port Valdez were closed.
Open waters included the Northern District except for the Perry Island Subdistrict.
Open waters within the Montague District included only the Port Chalmers Subdistrict. Stockdale Harbor regulatory waters and anadromous salmon stream closures were in effect. Port Chalmers regulatory waters closures were not in effect.
In the Southwestern District, only the waters of the Point Elrington Subdistrict were open. All anadromous stream closures remained in effect.

[g] Eastern District waters, west of 146° 30.62' W. longitude within Port Valdez, were open.
Waters of Galena Bay inside the yellow regulatory markers remained closed.
Open waters included the Northern District except for the Perry Island Subdistrict.
In the Montague District, only the waters of the Port Chalmers Subdistrict were open. Stockdale Harbor regulatory waters and anadromous salmon stream closures were in effect. Port Chalmers regulatory waters closures were not in effect from 12 Noon until 2:00 P.M.
In the Southwestern District, only the waters of the Point Elrington Subdistrict were open. All anadromous stream closures remained in effect.

[h] Open waters within the Eastern District included the Valdez Narrows Subdistrict inside a line from Potato Point to Entrance Point and west of 146° 30.62' W. longitude.
In the Southwestern District, only the waters of the Point Elrington Subdistrict were open. All anadromous stream closures remained in effect.

[i] Eastern District waters, west of 146° 30.62' W. longitude within Port Valdez, were open.
Waters of Galena Bay inside the yellow regulatory markers remained closed.
Open waters included the Northern District except for the Perry Island Subdistrict.
In the Southwestern District, only the waters of the Point Elrington Subdistrict were open. All anadromous stream closures remained in effect.

[j] Eastern District waters, west of 146° 30.62' W. longitude within Port Valdez, were open.
Waters of Galena Bay inside the yellow regulatory markers remained closed.
Open waters included the Northern District except for the Perry Island Subdistrict.
The Coghill District, including the Esther Subdistrict and Noerenberg Hatchery THA and SHA were open.
In the Southwestern District, only the waters of the Point Elrington Subdistrict were open. All anadromous stream closures remained in effect.

[k] The Coghill District, including the Esther Subdistrict and Noerenberg Hatchery THA and SHA were open.

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[l] Eastern District waters, west of 146° 30.62' W. longitude within Port Valdez, were open.
Waters of Galena Bay inside the yellow regulatory markers remained closed.
Waters of the Northern District east of Granite Point were open. The waters of Granite Bay, Cedar Bay, Wells Bay and Eaglek Bay, inside the yellow regulatory markers were also open.
In the Southwestern District, only the waters of the Point Elrington Subdistrict were open. All anadromous stream closures remained in effect.

[m] Waters of the Eastern District west of 146° 30.62' W. longitude within Port Valdez were open.
All anadromous salmon stream closures remained in effect.
Northern District waters, east of Granite Point, were open. The waters of Granite Bay, Cedar Bay, Wells Bay and Eaglek Bay, inside the yellow regulatory markers were also open. Within Eaglek Bay, the regulatory closed waters north of 60° 53.46' N. latitude were not in effect.
All anadromous salmon stream closures were in effect.
Within the Coghill District, only the Esther Subdistrict was open.
The Noerenberg Hatchery THA and SHA were closed.
In the Southwestern District, only the waters of the Point Elrington Subdistrict were open. All anadromous stream closures remained in effect.

[n] Eastern District waters, including the Valdez Narrows Subdistrict south of the latitude of Middle Rock light, were open.
Northern District waters, east of Granite Point, were open. The waters of Granite Bay, Cedar Bay, Wells Bay and Eaglek Bay, inside the yellow regulatory markers were also open. Within Eaglek Bay, the regulatory closed waters north of 60° 53.46' N. latitude were not in effect.
All anadromous salmon stream closures were in effect.
Within the Montague District, only the Port Chalmers regulatory waters east and north of the buoys marking the chum salmon net pen site in Port Chalmers were open.
In the Southwestern District, only the waters of the Point Elrington Subdistrict were open. All anadromous stream closures remained in effect.

[o] Eastern District waters, including the Valdez Narrows Subdistrict south of the latitude of Middle Rock light, were open.
Northern District waters, east of Granite Point, were open. The waters of Granite Bay, Cedar Bay, Wells Bay and Eaglek Bay, inside the yellow regulatory markers were also open. Within Eaglek Bay, the regulatory closed waters north of 60° 53.46' N. latitude were not in effect.
All anadromous salmon stream closures were in effect.
In the Southwestern District, only the waters of the Point Elrington Subdistrict were open. All anadromous stream closures remained in effect.
Open waters included the entire Montague District. All anadromous salmon stream closures remained in effect.
In the Southwestern District, only the waters of the Point Elrington Subdistrict were open. All anadromous stream closures remained in effect.

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[p] Eastern District waters, including the Valdez Narrows Subdistrict south of the latitude of Middle Rock light, were open.

Open waters included the Northern District except for the Perry Island Subdistrict and the waters of Unakwik Inlet north of the latitude of the yellow regulatory marker on the south shore of the entrance to Siwash Bay.

Within the Coghill District, only the Esther Subdistrict was open.

The Noerenberg Hatchery THA and SHA were closed.

Open waters included the entire Montague District. All anadromous salmon stream closures remained in effect.

In the Southwestern District, only the waters of the Point Elrington Subdistrict were open. All anadromous stream closures remained in effect.

[q] Open waters included the Eastern District except for the Valdez Narrows Subdistrict north of the latitude of Middle Rock light and waters of Sawmill Bay, Jack Bay, Galena Bay, Landlocked Bay, Irish Cove, Port Gravina, St Mathews Bay, Sheep Bay and Olsen Bay. The waters of the Port Fidalgo Subdistrict were also closed.

Open waters included the Northern District except for the Perry Island Subdistrict and the waters of Unakwik Inlet north of the latitude of the yellow regulatory marker on the south shore of the entrance to Siwash Bay.

Within the Coghill District, only the Esther Subdistrict was open.

The Noerenberg Hatchery THA and SHA were closed.

Open waters within the Southwestern District included only the Point Elrington Subdistrict and the Port San Juan Subdistrict, up to a line of buoys in the front of the barrier seine in front of the Armin F. Koernig (AFK) Hatchery, were open.

[r] Open waters included the Eastern District except for the Valdez Narrows Subdistrict north of the latitude of Middle Rocklight and waters of Sawmill Bay, Jack Bay, Galena Bay, Landlocked Bay, Irish Cove, Port Gravina, St Mathews Bay, Sheep Bay and Olsen Bay. The waters of the Port Fidalgo Subdistrict were also closed.

Open waters included the Northern District except for the Perry Island Subdistrict and the waters of Unakwik Inlet north of the latitude of the yellow regulatory marker on the south shore of the entrance to Siwash Bay.

Within the Coghill District, only the Esther Subdistrict was open.

The Noerenberg Hatchery THA and SHA were closed.

Open waters within the Southwestern District included only the Point Elrington Subdistrict and the Port San Juan Subdistrict, outside a line running from a cluster of buoys on a piling at Port Ashton to the juvenile salmon net pens in front of AFK Hatchery.

[s] Open waters included the Eastern District except for the Valdez Narrows Subdistrict north of the latitude of Middle Rock light and waters of Sawmill Bay, Jack Bay, Galena Bay, Landlocked Bay, Irish Cove, Port Gravina, St Mathews Bay, Sheep Bay and Olsen Bay. The waters of the Port Fidalgo Subdistrict were also closed.

Waters of the Northern District, up to a line of buoys in front of the barrier seine at Cannery Creek Hatchery were open. Anadromous salmon stream closures in the cove south of the barrier seine in the Cannery Creek Hatchery SHA and inside Hidden Bay on Culross Island were not in effect.

Within the Coghill District, only the Esther Subdistrict was open.

The Noerenberg Hatchery THA and SHA were closed.

Within the Southwestern District, only the waters of the Point Elrington and Port San Juan Subdistricts were open. The AFK Hatchery SHA was not open.

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[t] Open waters included the Eastern District except for the Valdez Narrows Subdistrict north of the latitude of Middle Rock light and waters of Sawmill Bay, Jack Bay, Galena Bay, Landlocked Bay, Irish Cove, Port Gravina, St Mathews Bay, Sheep Bay and Olsen Bay. The waters of the Port Fidalgo Subdistrict were also closed.

Waters of the Northern District, up to a line of buoys in front of the barrier seine at Cannery Creek Hatchery were open. Anadromous salmon stream closures in the cove south of the barrier seine in the Cannery Creek Hatchery SHA and inside Hidden Bay on Culross Island were not in effect.

Within the Coghill District, only the Esther Subdistrict was open.

The Noerenberg Hatchery THA and SHA were closed.

In the Southwestern District, only the waters south of the latitude of Dual Head, near the entrance to Whale Bay, at 60° 15.00' N. latitude and south of the Bay of Isles, at 60° 23.00' N. latitude, were open. The AFK Hatchery SHA was closed.

[u] Open waters included the Eastern District except for the Valdez Narrows Subdistrict north of the latitude of Middle Rock light and waters of Sawmill Bay, Jack Bay, Galena Bay, Landlocked Bay, Irish Cove, Port Gravina, St Mathews Bay, Sheep Bay and Olsen Bay. The waters of the Port Fidalgo Subdistrict were also closed.

All waters of the Northern District, excluding the Cannery Creek Hatchery SHA were open. Anadromous salmon stream closures in the cove south of the barrier seine and inside Hidden Bay on Culross Island were not in effect.

Open waters, within the Coghill District, included only the Esther Subdistrict up to a line a buoys in front of the Noerenberg Hatchery barrier seine.

In the Southwestern District, only the waters south of the latitude of Dual Head, near the entrance to Whale Bay, at 60° 15.00' N. latitude and south of the Bay of Isles, at 60° 23.00' N. latitude, were open. The AFK Hatchery SHA was closed.

[v] Open waters included the Eastern District except for the Valdez Narrows Subdistrict north of the latitude of Middle Rock light and waters of Sawmill Bay, Jack Bay, Galena Bay, Landlocked Bay, Irish Cove, Port Gravina, St Mathews Bay, Sheep Bay and Olsen Bay. The waters of the Port Fidalgo Subdistrict were also closed.

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Within the Southwestern District, only the waters south of the latitude of Dual Head, near the entrance to Whale Bay, at 60° 15.00' N. latitude and south of the Bay of Isles, at 60° 23.00' N. latitude, and the AFK Hatchery SHA, up to a line of buoys in front of the barrier seine, were open.

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[w] Open waters included the Eastern District except for the Valdez Narrows Subdistrict north of the latitude of Middle Rock light and waters of Sawmill Bay, Jack Bay, Galena Bay, Landlocked Bay, Irish Cove, Port Gravina, St Mathews Bay, Sheep Bay and Olsen Bay. The waters of the Port Fidalgo Subdistrict were also closed.

All waters of the Northern District, excluding the Cannery Creek Hatchery SHA were open. Anadromous salmon stream closures in the cove south of the barrier seine and inside Hidden Bay on Culross Island were not in effect.

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[x] Open waters included the Eastern District except for the Valdez Narrows Subdistrict north of the latitude of Middle Rock light and waters of Sawmill Bay, Jack Bay, Galena Bay, Landlocked Bay, Irish Cove, Port Gravina, St Mathews Bay, Sheep Bay and Olsen Bay. The waters of the Port Fidalgo Subdistrict were also closed.

Northern District waters, up to a line of buoys in front of the barrier seine at Cannery Creek Hatchery, were open. Anadromous salmon stream closures inside Hidden Bay on Culross Island were not in effect.

Open waters, within the Coghill District, included only the Esther Subdistrict up to a line a buoys in front of the Noerenberg Hatchery barrier seine.

Within the Southwestern District, only the waters south of the latitude of Dual Head, near the entrance to Whale Bay, at 60° 15.00' N. latitude and south of the Bay of Isles, at 60° 23.00' N. latitude, and the AFK Hatchery SHA, up to a line of buoys in front of the barrier seine, were open.

[y] Open waters included the Eastern District except for the Valdez Narrows Subdistrict north of the latitude of Middle Rock light and waters of Sawmill Bay, Jack Bay, Galena Bay, Landlocked Bay, Irish Cove, Port Gravina, St Mathews Bay, Sheep Bay and Olsen Bay. The waters of the Port Fidalgo Subdistrict were also closed.

Northern District waters, up to a line of buoys in front of the barrier seine at Cannery Creek Hatchery, were open. Anadromous salmon stream closures inside Hidden Bay on Culross Island were not in effect.

The Coghill District, including the Noerenberg Hatchery THA and SHA, up to a line of buoys in front of the hatchery barrier seine, was open.

Within the Southwestern District, only the waters south of the latitude of Dual Head, near the entrance to Whale Bay, at 60° 15.00' N. latitude and south of the Bay of Isles, at 60° 23.00' N. latitude, and the AFK Hatchery SHA, up to a line of buoys in front of the barrier seine, were open.

Open waters included the entire Montague District. All anadromous salmon stream closures remained in effect.

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[z] Open waters included the Eastern District except for the Valdez Narrows Subdistrict north of the latitude of Middle Rock light and waters of Sawmill Bay, Jack Bay, Galena Bay, Landlocked Bay, Irish Cove, Port Gravina, St Mathews Bay, Sheep Bay and Olsen Bay. The waters of the Port Fidalgo Subdistrict were also closed.

Northern District waters, up to a line of buoys in front of the barrier seine at Cannery Creek Hatchery, were open. Anadromous salmon stream closures inside Hidden Bay on Culross Island were not in effect.

The Coghill District, including the Noerenberg Hatchery THA and SHA, up to a line of buoys in front of the hatchery barrier seine, was open.

In the Southwestern District, only the waters south of the latitude of Dual Head, near the entrance to Whale Bay at, 60° 15.00' N. latitude and south of the Bay of Isles, at 60° 23.00' N. latitude, and the AFK Hatchery SHA and THA,up to a line of buoys in front of the barrier seine, were open.

Open waters included the entire Montague District. All anadromous salmon stream closures remained in effect.

[aa] Open waters included the Eastern District except for the Valdez Narrows Subdistrict north of the latitude of Middle Rock light and waters of Sawmill Bay, Jack Bay, Galena Bay, Landlocked Bay, Irish Cove, Port Gravina, St Mathews Bay, Sheep Bay and Olsen Bay. The waters of the Port Fidalgo Subdistrict were also closed.

Within the Eastern District, open waters included the Valdez Narrows Subdistrict, except within 200 yards of the Solomon Gulch Creek weir. Waters Port Valdez east of a line from the grain elevators to the regulatory marker east of the hatchery were also closed. The small boat harbor was open from 3:00 PM to 4:00 PM.

Northern District waters, up to a line of buoys in front of the barrier seine at Cannery Creek Hatchery, were open. Anadromous salmon stream closures inside Hidden Bay on Culross Island were not in effect.

The Coghill District, including the Noerenberg Hatchery THA and SHA, up to a line of buoys in front of the hatchery barrier seine, was open.

In the Southwestern District, only the waters south of the latitude of Dual Head, near the entrance to Whale Bay at 60° 15.00' N. latitude and south of the Bay of Isles, at 60° 23.00' N. latitude, and the AFK Hatchery SHA and THA,up to a line of buoys in front of the barrier seine, were open.

Open waters included the entire Montague District. All anadromous salmon stream closures remained in effect.

[bb] Within the Eastern District, open waters included the Valdez Narrows Subdistrict, except within 200 yards of the Solomon Gulch Creek weir. Waters Port Valdez east of a line from the grain elevators to the regulatory marker east of the hatchery were also closed. The small boat harbor was open from 3:00 PM to 4:00 PM.

Northern District waters, up to a line of buoys in front of the barrier seine at Cannery Creek Hatchery, were open. Anadromous salmon stream closures inside Hidden Bay on Culross Island were not in effect.

The Coghill District, including the Noerenberg Hatchery THA and SHA, up to a line of buoys in front of the hatchery barrier seine, was open.

In the Southwestern District, only the waters south of the latitude of Dual Head, near the entrance to Whale Bay at, 60° 15.00' N. latitude and south of the Bay of Isles, at 60° 23.00' N. latitude, and the AFK Hatchery SHA and THA,up to a line of buoys in front of the barrier seine, were open.

Open waters included the entire Montague District. All anadromous salmon stream closures remained in effect.

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[cc] Within the Eastern District, only the Valdez Narrows Subdistrict, including the Solomon Gulch Hatchery Terminal Harvest Area (THA) and Special Harvest Area (SHA), was open.
Within the Northern District, only the waters of the Cannery Creek Hatchery THA and SHA, up to a line of bouys in front of the barrier seine, were open. Waters of Hidden Bay, on Culross Island, were also open.
Within the Coghill District, only the waters of the Noerenberg Hatchery THA and SHA, up to a line of buoys in front of the barrier seine, were open.
Within the Southwestern District, only the waters of the AFK Hatchery THA and SHA, up to a line of buoys in front of the barrier seine, were open.

Appendix E.2. Commercial salmon harvest by species, all gear and districts combined, Prince William Sound, 1971 - 1998.

CATCH BY SPECIES						
Year[a]	Chinook	Sockeye	Coho	Pink	Chum	Total
1971	3,551	88,368	30,551	7,310,964	574,265	8,007,699
1972[b]	547	197,526	1,634	54,783	45,370	299,860
1973	2,405	124,802	1,399	2,056,878	729,839	2,915,323
1974[b]	1,590	129,366	801	448,773	88,544	669,074
1975	2,519	189,613	6,142	4,452,805	100,479	4,751,558
1976	1,044	112,809	6,171	3,018,991	370,478	3,509,493
1977	648	310,358	843	4,513,082	572,610	5,397,541
1978	1,042	222,083	1,495	2,913,721	485,147	3,623,488
1979	2,015	150,040	6,843	15,607,620	326,414	16,092,932
1980	189	189,816	2,952	14,157,057	482,016	14,832,030
1981	404	251,222	4,383	20,524,470	1,878,716	22,659,195
1982	255	1,055,099	24,362	20,396,222	1,335,368	22,811,306
1983	1,048	92,111	10,496	14,038,796	1,041,309	15,183,760
1984	489	311,955	12,420	22,086,806	1,201,842	23,613,512
1985	1,104	493,278	19,753	25,056,663	1,280,093	26,850,891
1986	1,330	488,715	12,277	11,407,271	1,683,049	13,592,642
1987	874	540,109	47,751	29,198,507	1,904,494	31,691,735
1988	1,037	183,572	75,709	11,817,323	1,832,114	13,909,755
1989	1,113	140,090	203,574	21,860,582	995,962	23,201,321
1990	447	58,497	234,525	44,163,479	959,838	45,416,786
1991	445	507,815	145,311	37,134,311	331,906	38,119,788
1992	1,475	780,932	202,311	8,635,448	328,568	9,948,734
1993	2,148	418,948	48,310	5,761,436	1,173,341	7,404,183
1994	1,376	334,183	121,518	36,874,188	1,039,095	38,370,360
1995	1,364	230,057	140,314	16,045,396	702,216	17,119,347
1996	700	606,525	172,448	26,036,570	2,077,996	28,894,239
1997	1,186	1,197,776	64,360	25,828,078	2,224,725	29,316,125
1998	2,013	365,591	74,105	28,664,281	1,266,887	30,372,877
Ten Year Average (1988-97)	1,129	445,840	140,838	23,415,681	1,166,576	25,170,064

[a] Includes purse seine, drift gillnet and set gillnet catches from all P.W.S. fishing districts; Eastern, Northern, Unakwik, Coghill, Northwestern, Eshamy, Southwestern, Montague and Southeastern. Also includes hatchery sales harvests, confiscated fish, donated and discarded fish catch, the surimi study fish, and special use educational permit catches.

[b] General purse seine season closed.

Appendix E.3. Commercial pink salmon harvest for all gear types, by district, Prince William Sound, 1969-1998. Includes purse seine, drift gillnet, and set gillnet catches from all Prince William Sound districts; Unakwik catches are included in the Northern District. Does not include hatchery cost recovery, confiscated and test fish harvests.

	DISTRICT								
Year	Eastern	Northern	Coghill	Northwestern	Eshamy	Southwestern	Montague	Southeastern	Total
1969	963,583	262,403	43,134	268,240		2,565,737		696,182	4,799,279
1970	358,326	308,797	100,338	371,528		1,518,700		90,438	2,748,127
1971[a]	1,974,605	666,308	323,841	163,401		3,901,939		276,605	7,306,699
1972[b]			9,408		54,781				64,189
1973	327,453	183,467	95,793	127,197		407,388	146,778	657,429	1,945,505
1974[c]			163,328		285,441				448,769
1975	712,328	171,657	303,597	420,891		1,673,887	118,467	875,456	4,276,283
1976	1,380,943	384,267	217,696	207,190		589,458		82,366	2,861,920
1977	1,673,044	147,964	230,215	208,727		930,469	77,104	824,374	4,091,897
1978	1,516,076	933,013	13,059					216,696	2,678,844
1979	4,500,032	115,886	38,560	59,423		5,111,073	1,347,413	4,160,925	15,333,312
1980	3,140,134	1,271,177	134,876	306,109		7,507,776	950	1,271,389	13,632,411
1981	4,797,583	1,194,621	34,155	46,874		10,371,220	278,879	3,221,268	19,944,600
1982	2,959,601	2,331,903	1,000,524	520,972	3,997	10,801,771	6,444	747,116	18,372,328
1983	2,430,063	1,021,345	273,131	714,522		5,957,068	158,241	1,482,013	12,036,383
1984	4,525,029	2,194,904	996,483	1,412,822	544,082	10,197,349	11,587	1,245,042	21,127,298
1985	6,715,143	1,002,872	523,773	527,132	58,183	10,843,752	1,448,809	2,733,562	23,853,226
1986	2,488,540	944,871	214,593	285,184	43,061	6,374,535		147,268	10,498,052
1987	6,964,549	2,419,611	1,578,568	750,877	89,902	13,341,940	111,011	955,988	26,212,446
1988	481,324	286,743	2,932,072	7,738	529,329	5,411,424		1,776	9,650,406
1989	3,151,096	6,464,090	3,925,487	181,565	[c]	[c]	[c]	73,177	13,795,415
1990	7,970,364	5,482,585	2,692,788	891,444	534,951	17,811,479	10,658	12,325	35,406,594
1991	2,617,222	4,150,612	2,211,575		64,591	17,849,425			26,893,425
1992	489,228	1,142,061	363,887		543,115	3,039,775			5,578,066
1993		413,308	493,747		130,542	2,475,798			3,513,395
1994	11,554,320	7,171,038	3,597,094		565,669	3,408,093			26,296,214
1995	4,235,638	3,656,119	1,078,693		88,830	1,707,745	18,239	11,418	10,796,682
1996[d]	6,059,063	5,039,988	1,543,869		35,691	5,046,919			17,725,530
1997[e]	4,534,365	3,162,822	2,030,586		222,934	5,929,544	65,107	28,040	15,973,398
1998[e]	2,231,061	5,035,736	3,228,761		134,984	8,425,853	430,525	350,081	19,837,001
10 year Average (1988-97)	4,565,847	3,696,937	2,086,980	360,249	271,565	6,268,020	23,501	25,347	16,562,913

[a]The Eshamy District was closed to fishing.

[b]The general purse seine district was closed to fishing.

[c]These districts were closed due to the Exxon Valdez oil spill.

[d]Eastern and Northern District totals include discarded salmon.

[e]Montague District totals include discarded salmon.

Appendix E.4. Aerial escapement indices for pink and chum salmon by district, Prince William Sound, 1998.

PINK SALMON (EVEN CYCLE)

District	Escapement Goal	Even Cycle Escapement Range	1976-96 Mean Index	Observed Escapement Index[a]	Deviation From Goal
Eastern	474,000	427,000 - 521,000	412,837	377,700	-20.3%
Northern/Unakwik	213,000	192,000 - 235,000	150,807	213,288	0.1%
Coghill	143,000	129,000 - 158,000	110,579	85,968	-39.9%
Northwestern	135,000	122,000 - 149,000	99,351	97,485	-27.8%
Eshamy	8,200	7,000 - 9,000	1,597	4,644	-43.4%
Southwestern	144,000	130,000 - 159,000	85,749	280,335	94.7%
Montague	70,000	63,000 - 77,000	56,718	161,275	130.4%
Southeastern	239,000	215,000 - 263,000	212,388	199,410	-16.6%
Total	1,426,200		1,130,027	1,420,105	-0.4%

CHUM SALMON

District	Escapement Goal	Desired Escapement Range	1976-97 Mean Index	Observed Escapement Index[a]	Deviation From Goal
Eastern	98,100	87,200 - 109,000	90,461	86,227	-12.1%
Northern/Unakwik	33,075	29,400 - 36,750	39,137	28,867	-12.7%
Coghill	33,325	29,600 - 37,050	20,818	22,764	-31.7%
Northwestern	21,350	19,000 - 23,700	15,085	7,553	-64.6%
Eshamy	0	0 - 0	34	0	
Southwestern	3,825	3,400 - 4,250	1,893	1,602	-58.1%
Montague	12,825	11,400 - 14,250	636	10,690	-16.6%
Southeastern	22,500	20,000 - 25,000	17,175	52,103	131.6%
Total	225,000		185,241	209,806	-6.8%

[a]Based on weekly aerial survey counts of 209 index spawning streams in Prince William Sound. This does not represent the total spawning escapement but rather a comparable annual index.

Appendix E.5. Pink salmon harvests and escapement indices, including hatchery sales harvests and broodstock, Prince William Sound, 1965 - 1998. Historical data revised in 1989.

	PINK SALMON ESCAPEMENTS[a]									Hatchery		Common Property	
Year	Eastern	Northern/ Unakwik	Coghill	Northwestern	Eshamy	Southwest	Montague	Southeastern	Total	Sales	Brood	Catch[b]	Total Run[c]
1965	257,853	59,820	91,584	159,011	9,340	65,380	77,042	255,926	975,956			2,460,471	3,436,427
66	544,980	288,710	135,440	79,960	11,720	115,570	42,220	204,570	1,423,170			2,699,418	4,122,588
67	255,240	144,200	65,240	82,980	5,020	42,950	10,020	236,610	842,260			2,626,340	3,468,600
68	364,930	151,120	108,020	117,430	10,770	172,770	52,350	179,120	1,156,510			2,452,168	3,608,678
69	160,600	94,770	39,020	23,830	0	57,890	1,550	26,910	404,570			4,828,579	5,233,149
1970	387,090	125,360	95,170	82,660	7,610	66,790	73,880	140,660	979,220			2,809,996	3,789,216
71	352,800	126,210	62,160	14,320	1,710	79,140	296,730	179,480	1,112,550			7,310,964	8,423,514
72	344,470	83,900	30,960	39,020	1,100	29,530	33,140	79,060	641,180			54,783	695,963
73	309,040	69,660	493,780	2,910	0	52,320	119,520	177,780	1,225,010			2,056,878	3,281,888
74	256,880	206,750	56,940	163,930	6,240	160,980	11,750	94,650	958,120			448,773	1,406,893
1975	412,560	38,260	452,430	4,990	0	77,270	85,380	194,670	1,265,560			4,452,805	5,718,365
76	472,080	139,600	57,090	68,150	5,840	52,120	13,790	117,590	926,260			3,018,995	3,945,255
77	390,930	69,980	130,510	80,890	16,450	178,670	152,960	277,780	1,298,170	7,745	16,112	4,514,431	5,844,258
78	279,120	163,010	85,450	132,300	5,430	258,980	56,690	164,030	1,145,010	114,188	40,432	2,780,073	4,079,703
79	642,220	200,730	70,980	124,020	0	231,300	219,400	728,630	2,217,280	223,748	54,207	15,393,223	17,888,458
1980	535,960	189,140	214,930	159,260	13,100	133,470	118,400	307,680	1,671,940	346,728	145,061	13,434,024	15,597,753
81	599,340	243,170	106,450	51,210	3,990	93,630	255,420	359,870	1,713,080	707,037	268,501	19,286,542	21,975,160
82	573,070	332,560	368,380	174,290	15,080	195,950	132,380	482,860	2,274,570	1,354,732	239,945	18,858,647	22,727,894
83	481,950	168,410	310,330	196,630	12,610	161,290	230,200	601,680	2,463,100	686,963	258,062	13,309,461	16,347,586
84	1,209,740	593,310	429,450	452,370	16,860	345,760	191,810	792,560	4,031,860	415,393	341,259	21,683,076	26,471,588
1985	750,530	214,210	296,970	199,190	1,410	181,270	332,240	645,510	2,621,330	1,209,960	640,340	23,959,698	28,431,328
86	356,380	141,420	101,600	81,490	3,840	74,980	44,680	155,830	960,220	905,464	466,471	10,498,052	12,830,207
87	514,570	132,960	147,060	75,390	3,450	112,920	149,260	330,630	1,466,240	2,691,190	1,158,908	26,125,769	31,442,107
88	362,370	143,850	37,070	73,780	490	126,440	67,990	152,540	964,530	1,632,701	824,302	9,650,406	13,071,939
89	359,730	106,530	45,510	68,540	19,470	176,230	181,760	315,000	1,272,770	5,737,911	856,927	13,854,209	23,796,279
1990	443,660	131,580	49,110	115,870	17,870	150,100	113,572	304,090	1,325,852	6,691,160	749,910	35,430,821	46,239,241
91	474,380	165,930	98,580	101,320	18,800	197,095	247,890	533,170	1,837,165	5,201,860	1,324,255	31,178,750	40,295,731
92	204,383	72,915	23,611	42,308	2,709	66,953	47,156	95,070	555,105	2,626,248	802,117	5,578,099	9,984,715
93	315,209	95,614	41,837	46,011	9,348	98,573	144,784	315,093	1,066,469	2,212,403	893,462	3,548,694	7,721,028
94	615,240	178,151	65,648	141,290	11,799	144,594	60,084	196,378	1,413,184	10,521,439	1,467,755	26,364,862	39,767,240
1995	396,696	84,447	46,029	50,582	10,182	82,490	183,448	336,310	1,190,184	5,090,152	1,154,635	10,975,079	18,410,050
96	584,236	218,022	104,781	86,709	3,000	63,337	92,966	330,285	1,483,336	8,291,205	1,264,701	17,745,365	28,784,607
97	345,725	65,260	52,961	53,740	914	112,010	206,943	585,135	1,422,688	9,854,675	1,048,485	15,973,403	28,299,251
98	377,700	213,288	85,968	97,485	4,644	280,335	161,275	199,410	1,420,105	8,825,226	933,503	19,836,055	31,014,889
EVEN CYCLE AVG. (1966-96)													
Avg.	465,429	198,393	120,566	124,018	8,124	143,451	77,302	235,081	1,372,363	3,793,135	661,405	11,373,154	15,772,845
ODD CYCLE AVG. (1965-97)													
Avg.	412,904	122,362	150,084	78,563	6,629	117,672	170,267	358,834	1,417,317	3,056,695	697,627	11,873,841	15,883,128

[a]Coghill and Northwestern escapement figures correspond to current district boundaries.

[b]Includes the common property harvest of both wild and hatchery stocks. Does not include hatchery sales harvests.

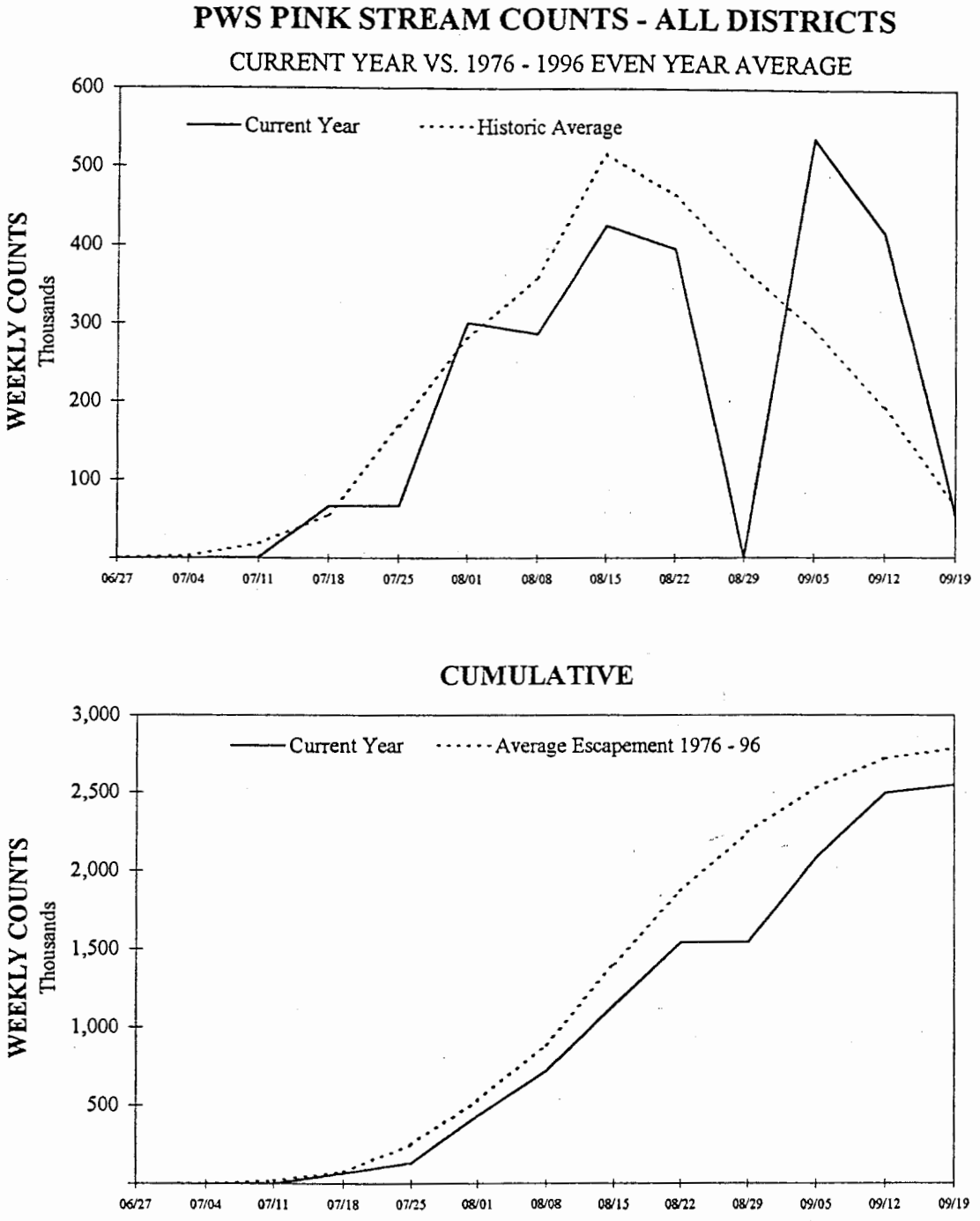
[c]Represents the sum of the commercial catch, hatchery sales, brood (including roe recoveries), plus the escapement index. Does not account for wild stock escapement into non-index streams.

Appendix E.6. Weekly aerial estimates of pink salmon escapement by statistical area, Prince William Sound, 1998.

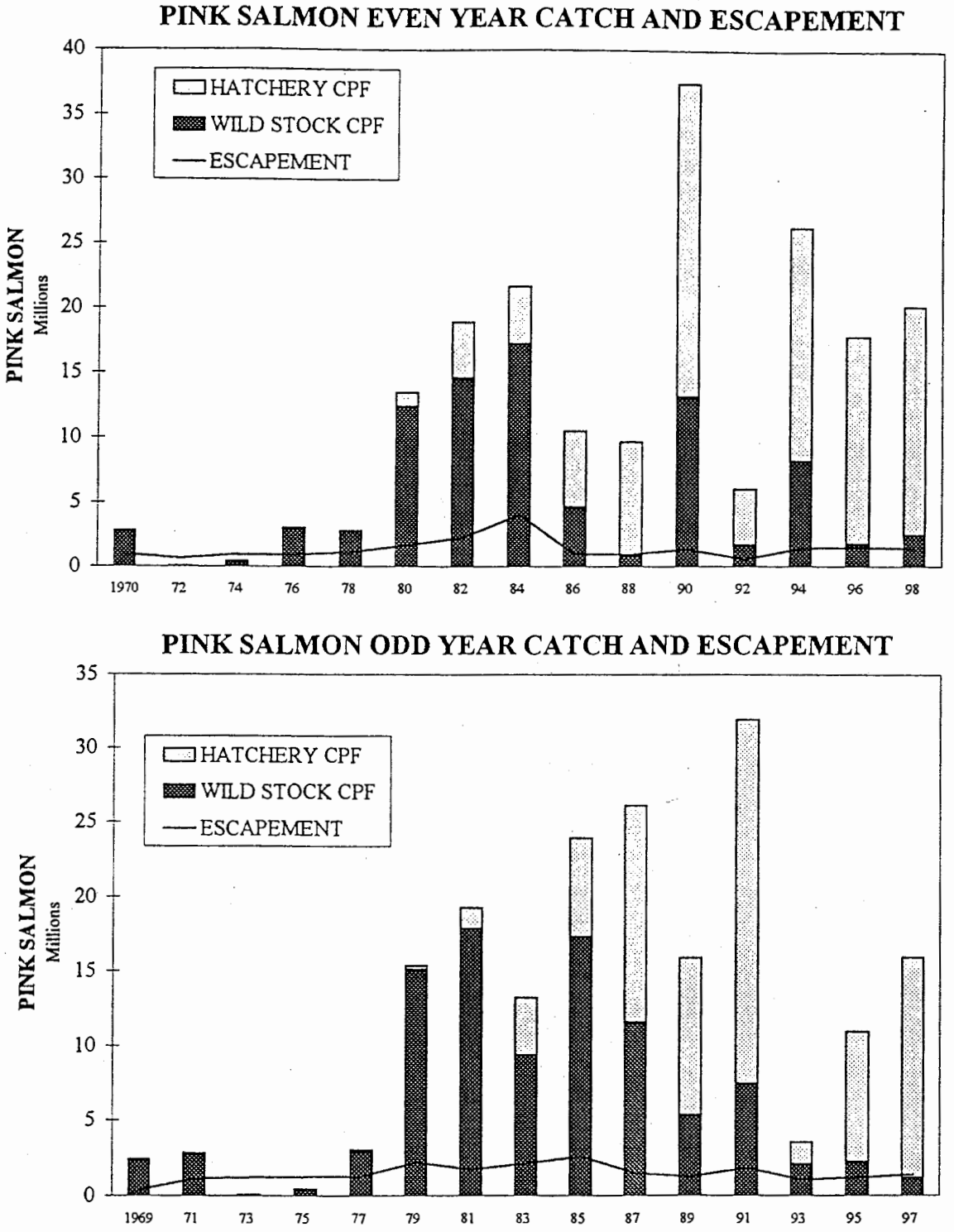
Survey Location		Week Ending Dates[a]														Adjusted Total[b]
		06/27	07/04	07/11	07/18	07/25	08/01	08/08	08/15	08/22	08/29	09/05	09/12	09/19	09/26	
Orca Inlet	22110	NS	0	0	500	3,300	18,200	5,800	3,100	5,500	NS	300	NS	NS	NS	19,619
Simpson & Sheep Bay	22120	0	0	400	52,050	1,600	57,700	19,152	16,400	30,300	NS	17,550	NS	NS	NS	98,574
Port Gravina	22130	0	0	10	1,180	3,770	25,850	25,100	22,950	53,000	NS	14,500	NS	NS	NS	81,134
Port Fidalgo	22140	0	0	400	4,160	5,900	32,450	34,400	21,700	23,800	NS	12,250	NS	NS	NS	70,719
Valdez Arm	22150	0	10	200	1,200	6,700	29,450	44,635	28,550	33,500	NS	28,200	NS	NS	NS	101,304
Port Valdez	22161	0	0	0	0	1,350	3,900	4,400	1,500	400	NS	150	NS	NS	NS	6,350
Eastern District Total		0	10	1,010	59,090	22,620	167,550	133,487	94,200	146,500	NS	72,950	NS	NS	NS	377,700
Columbia & Long Bay	22210	0	0	10	90	2,210	7,750	17,420	12,200	8,950	NS	9,760	NS	NS	NS	33,038
Wells Bay & Unakwik Inlet	22220	0	0	50	4,955	9,800	27,020	33,900	46,400	54,100	NS	54,850	NS	NS	NS	141,752
Eaglek Bay	22230	NS	NS	0	0	NS	7,100	15,975	10,150	11,950	NS	13,500	NS	NS	NS	36,498
Northern District Total		0	0	60	5,045	12,010	41,870	67,295	68,750	75,000	NS	78,110	NS	NS	NS	211,288
Upper Unakwik Inlet	22910	NS	NS	0	0	NS	0	50	300	10	NS	2,000	NS	NS	NS	2,000
Unakwik District (229) Total		NS	NS	0	0	NS	0	50	300	10	NS	2,000	NS	NS	NS	2,000
West Side Port Wells	22310	NS	NS	0	212	NS	8,850	13,470	8,700	NS	NS	10,700	NS	NS	NS	31,558
Esther Passage	22320	NS	NS	0	0	NS	420	800	600	NS	NS	700	NS	NS	NS	1,673
College Fiord	22330	NS	NS	0	50	NS	5,000	22,500	40,100	NS	NS	8,500	NS	NS	NS	52,737
Coghill District Total		NS	NS	0	262	NS	14,270	36,770	49,400	NS	NS	19,900	NS	NS	NS	85,968
Passage Canal & Cochrane	22410	NS	NS	60	25	NS	7,750	5,850	13,250	NS	NS	17,100	NS	NS	NS	33,511
Culross Passage	22430	NS	NS	0	250	NS	950	1,200	30,300	NS	NS	20,800	NS	NS	NS	43,469
Port Nellie Juan	22440	NS	NS	1	620	NS	4,460	6,200	8,100	NS	NS	8,100	NS	NS	NS	20,505
Northwestern District Total		NS	NS	61	895	NS	13,160	13,250	51,650	NS	NS	46,000	NS	NS	NS	97,485
Crafton/Eshamy	22530	NS	NS	NS	0	NS	80	1,900	1,400	NS	NS	2,300	NS	NS	NS	4,644
Eshamy District Total		NS	NS	NS	0	NS	80	1,900	1,400	NS	NS	2,300	NS	NS	NS	4,644
Chenega Is. & Dangerous P.	22620	NS	NS	0	NS	11,320	5,550	20,350	50,980	NS	NS	133,900	NS	NS	200	215,669
East Knight Is.	22630	NS	NS	10	NS	3,000	3,000	4,000	5,500	NS	NS	5,000	NS	NS	0	14,690
Bainbridge & Latouche Pass	22640	NS	NS	0	NS	0	350	250	1,100	NS	NS	29,950	NS	NS	4,100	40,622
Port Bainbridge	22650	NS	NS	0	NS	1,800	400	3,000	2,900	NS	NS	4,000	NS	NS	0	9,354
Southwestern District Total		NS	NS	10	NS	16,120	9,300	27,600	60,480	NS	NS	172,850	NS	NS	4,300	280,335
Montague Strait	22710	NS	NS	0	NS	875	5,850	4,300	18,925	41,400	NS	54,450	NS	NS	1,000	98,303
Green Island	22720	NS	NS	0	NS	325	1,000	860	5,700	14,150	NS	49,450	NS	NS	50	62,972
Montague District Total		NS	NS	0	NS	1,200	6,850	5,160	24,625	55,550	NS	103,900	NS	NS	1,050	161,275
Orca Is. & East Hawkins	22810	NS	NS	0	0	500	600	NS	100	200	NS	300	NS	NS	NS	943
Hawkins Cutoff	22820	NS	NS	0	350	5,500	17,250	NS	20,000	10,100	NS	7,800	NS	NS	NS	36,845
North Hawkins & Canoe P.	22830	NS	0	0	400	2,110	8,590	NS	13,800	16,500	NS	32,700	NS	NS	NS	54,279
Double Bay	22840	NS	NS	0	200	700	4,650	NS	9,500	16,000	NS	NS	NS	NS	NS	20,678
Johnstone Point	22850	NS	NS	0	0	110	600	NS	3,600	4,250	NS	NS	NS	NS	NS	5,473
Port Etches	22860	NS	NS	10	200	5,100	15,650	NS	28,100	71,800	NS	NS	NS	NS	NS	81,192
Southeastern District Total		NS	0	10	1,150	14,020	47,340	NS	75,100	118,850	NS	40,800	NS	NS	NS	199,410
TOTAL OF 9 DISTRICTS		0	10	1,151	66,442	65,970	300,420	285,512	425,905	395,910	NS	538,810	NS	NS	5,350	1,420,105

[a]There are a total of 209 streams included in the systematic aerial survey program. The survey program commences in the Eastern District where the earliest escapements in the Sound occur. Weather and conditions permitting, each stream is flown weekly. Failure to fly a survey due to run timing or bad survey conditions is denoted by NS (no survey). A notation of NC (no count) occurs when a stream is flown but no count is possible because of survey conditions (ie. water clarity). During the peak of the pink salmon run many streams are flown twice weekly to provide fisheries managers with more timely escapement data. In cases where more than one survey per week was flown the weekly observation shown in this table is the average of the two counts if observing conditions during both were good or, the maximum of the two counts if conditions during the minimum count were poor.

[b]The adjusted total is an escapement estimate based a geometric method used since the inception of the systematic survey program in the early 1960's. In this method, aerial observers are assumed to count without error or bias. Linear interpolations between observations are used to estimate numbers of fish in the stream on days when no surveys are flown. All daily observations and interpolations are summed across the season. Because fish seen on day i may include fish seen on day $i+1$, the sum of all daily observations and interpolations must be divided by some residence time for fish in the streams to account for duplicate observations. The residence time of 17.5 days which has historically been used in this calculation is from tagging data completed by National Marine Fisheries Service on Olsen Creek in the early 1960's. Since observer bias does occur and since both observer bias and stream life are stream specific, adjusted totals in this table may be used for interannual comparisons but should not be interpreted as the true escapement.



Appendix E.7. Current year and historic weekly pink salmon escapement performance of index spawning streams, Prince William Sound, 1998.



Appendix E.8. Pink salmon catch and escapement, even years (1970 - 98), and odd years (1969 - 97), Prince William Sound, Alaska.

Apppendix E.9. Chum salmon harvests and escapement indices, including hatchery sales harvests and broodstock, Prince William Sound, 1965 - 1998.

	CHUM SALMON ESCAPEMENTS[a]									Hatchery		Common Property	
Year	Eastern	Northern	Coghill	Northwestern	Eshamy	Southwestern	Montague	Southeastern	Total	Sales	Brood	Catch[b]	Total Run[c]
1965	69,180	20,980	20,768	18,907	0	1,829	17,500	46,480	195,644			201,043	396,687
66	75,690	24,870	10,540	5,770	0	2,180	14,100	9,410	142,560			426,628	569,188
67	74,570	23,270	7,450	1,670	0	6,200	4,980	9,070	127,210			274,234	401,444
68	48,960	10,620	8,780	800	0	580	220	4,610	74,570			342,939	417,509
69	58,690	17,340	8,410	780	0	0	0	6,320	91,540			320,977	412,517
1970	34,430	4,020	11,880	2,720	0	550	0	7,950	61,550			230,661	292,211
71	49,730	11,870	6,600	5,600	100	1,430	27,990	6,450	109,770			574,265	684,035
72	112,950	70,760	28,160	22,980	0	4,010	3,340	26,990	269,190			45,370	314,560
73	213,170	140,030	72,610	13,250	0	1,020	3,110	48,080	491,270			729,839	1,221,109
74	72,010	55,510	29,280	6,580	0	240	80	3,200	166,900			88,544	255,444
1975	30,040	8,910	3,640	430	0	1,280	140	2,850	47,290			100,479	147,769
76	16,260	29,430	25,670	8,300	0	90	0	770	80,520			370,478	450,998
77	47,880	48,600	43,940	10,090	0	700	0	8,280	159,490			575,839	735,329
78	90,250	27,480	18,160	12,940	0	790	0	6,550	156,170			485,147	641,317
79	42,630	17,320	6,330	8,770	0	90	0	5,140	80,280			324,040	404,320
1980	26,720	27,880	23,340	3,060	0	2,040	70	6,710	89,820	6		412,948	502,774
81	71,560	28,670	2,050	15,130	0	710	0	16,010	134,130	118		1,745,869	1,880,117
82	146,120	68,580	22,130	21,880	0	1,530	0	25,260	285,500	0	86,200	1,335,368	1,707,068
83	143,800	85,720	61,410	31,660	340	3,170	0	21,410	347,510	0	44,000	1,030,546	1,422,056
84	129,190	59,080	19,690	7,920	0	20	0	8,650	224,550	4,886	3,000	1,196,785	1,429,221
1985	111,310	33,410	22,140	13,290	0	620	0	4,470	185,240	3,840	0	1,302,090	1,491,170
86	126,690	50,740	13,140	17,420	0	1,890	0	8,830	218,710	20,683	12,523	1,662,366	1,914,282
87	183,620	38,700	24,510	26,460	0	1,690	0	44,020	319,000	2,549	15,574	1,902,063	2,239,186
88	258,560	75,420	39,240	40,780	0	2,350	500	66,930	483,780	42,694	108,271	1,792,616	2,427,361
89	112,080	46,470	22,680	27,430	320	11,690	0	22,640	243,310	129,551	74,513	862,551	1,309,925
1990	115,100	112,480	26,020	37,020	0	80	1,050	7,275	299,025	24,554	107,284	935,284	1,366,147
91	86,360	19,080	6,070	8,960	0	2,800	925	9,203	133,398	13,471	114,814	318,435	580,118
92	48,804	12,903	10,003	11,072	300	2,940	783	3,881	90,686	57,392	183,940	271,176	603,194
93	54,102	24,975	8,430	18,966	0	1,300	30	19,172	126,975	475,148	140,330	706,196	1,448,649
94	40,476	23,942	14,176	12,992	100	2,225	0	4,057	97,968	380,365	114,654	677,848	1,270,835
1995	75,655	28,899	11,596	4,883	0	2,250	1,000	23,200	147,483	231,539	172,542	486,510	1,038,074
96	137,908	55,568	19,669	24,405	0	2,231	5,216	47,334	292,331	1,066,705	253,751	1,011,291	2,624,078
97	93,146	19,429	3,101	8,387	0	800	4,000	43,274	172,137	811,179	178,933	1,413,546	2,575,795
98	86,227	28,867	22,764	7,553	0	1,602	10,690	52,103	209,806	519,215	179,875	747,672	1,656,568
1965-97 AVG	90,838	40,090	19,746	13,676	35	1,858	2,577	17,408	186,227	181,371	100,646	731,939	1,065,894

[a]Coghill and Northwestern escapement figures correspond to current district boundaries.

[b]Includes the common property harvest of both wild and hatchery stocks. Does not include hatchery sales harvests.

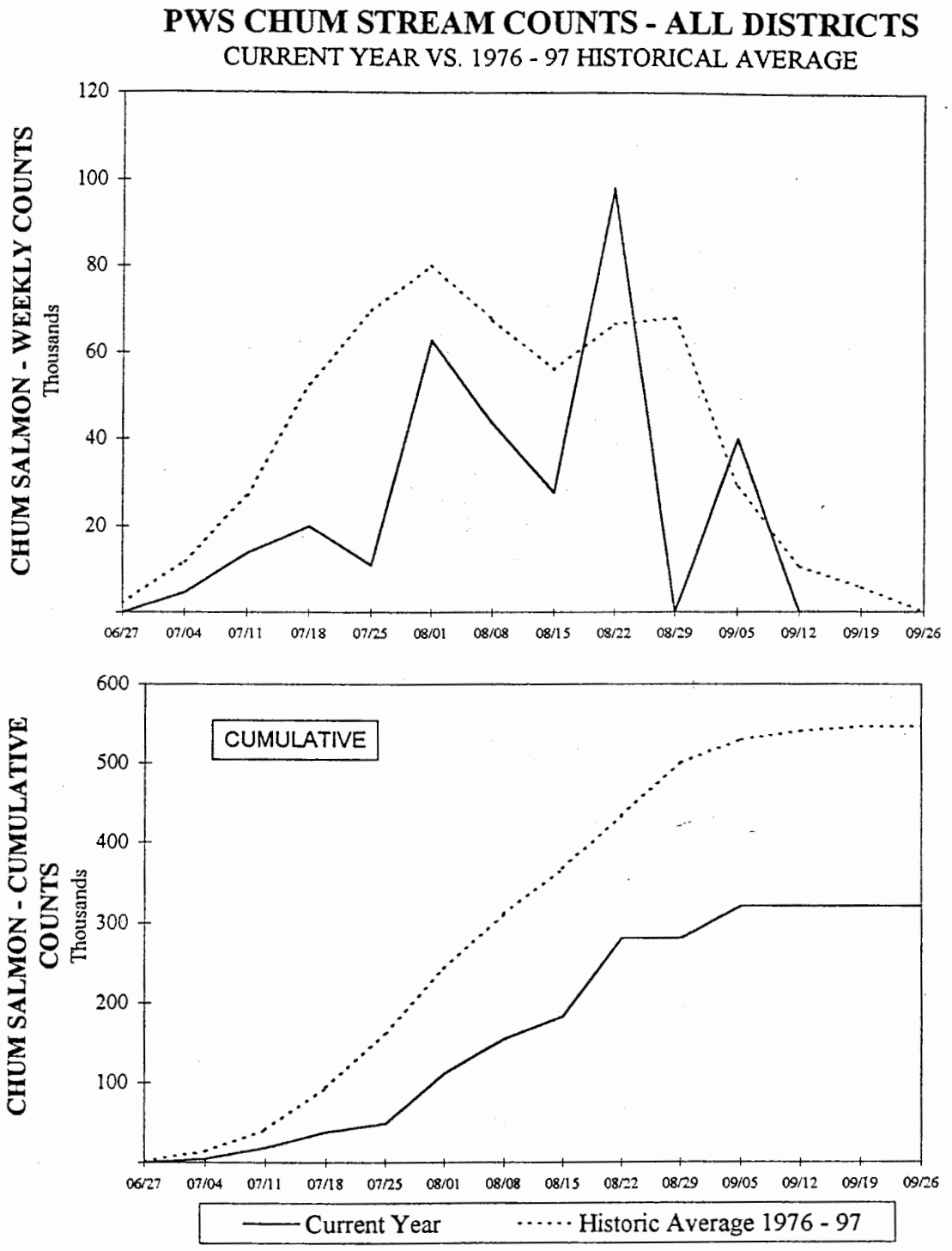
[c]Represents the sum of the common property catch, hatchery sales and brood, plus the escapement index. Does not account for wild stock escapement into non-index streams.

Appendix E.10. Weekly aerial estimates of chum salmon escapement by statistical area, Prince William Sound, 1998.

Survey Location		Week Ending Dates[a]														Adjusted Total[b]
		06/27	07/04	07/11	07/18	07/25	08/01	08/08	08/15	08/22	08/29	09/05	09/12	09/19	09/26	
Orca Inlet	22110	NS	0	15	200	350	2,000	0	250	1,450	NS	0	NS	NS	NS	2,702
Simpson & Sheep Bay	22120	0	1,020	5,315	380	250	4,950	11,500	2,325	8,575	NS	2,100	NS	NS	NS	18,253
Port Gravina	22130	0	1,450	4,025	5,900	1,800	12,000	8,500	3,450	17,700	NS	2,700	NS	NS	NS	29,303
Port Fidalgo	22140	0	0	0	500	1,100	7,000	3,000	3,600	3,850	NS	2,450	NS	NS	NS	12,400
Valdez Arm	22150	0	100	300	4,155	1,000	13,800	6,600	600	2,100	NS	8,700	NS	NS	NS	23,229
Port Valdez	22161	0	5	45	90	250	0	0	0	0	NS	0	NS	NS	NS	340
Eastern District Total		0	2,575	9,700	11,225	4,750	39,750	29,600	10,225	33,675	NS	15,950	NS	NS	NS	86,227
Columbia & Long Bay	22210	0	0	550	750	350	3,350	1,950	0	1,000	NS	400	NS	NS	NS	4,011
Wells Bay & Unakwik Inlet	22220	0	2,100	3,001	5,190	2,000	8,010	6,850	1,550	1,000	NS	10,260	NS	NS	NS	23,153
Eaglek Bay	22230	NS	NS	0	50	NS	520	75	0	500	NS	1,100	NS	NS	NS	1,703
Northern District Total		0	2,100	3,551	5,990	2,350	11,880	8,875	1,550	2,500	NS	11,760	NS	NS	NS	28,867
Upper Unakwik Inlet	22910	NS	NS	0	0	NS	0	0	0	0	NS	0	NS	NS	NS	0
Unakwik District (229) Total		NS	NS	0	0	NS	0	0	0	0	NS	0	NS	NS	NS	0
West Side Port Wells	22310	NS	NS	0	359	NS	1,400	900	2,300	NS	NS	7,150	NS	NS	NS	11,174
Esther Passage	22320	NS	NS	0	0	NS	0	0	0	NS	NS	0	NS	NS	NS	0
College Fiord	22330	NS	NS	0	650	NS	1,000	3,000	10,050	NS	NS	2,000	NS	NS	NS	11,590
Coghill District Total		NS	NS	0	1,009	NS	2,400	3,900	12,350	NS	NS	9,150	NS	NS	NS	22,764
Passage Canal & Cochrane	22410	NS	NS	5	700	NS	1,000	50	2,025	NS	NS	2,600	NS	NS	NS	5,222
Culross Passage	22430	NS	NS	0	0	NS	0	0	0	NS	NS	0	NS	NS	NS	0
Port Nellie Juan	22440	NS	NS	0	260	NS	1,350	0	900	NS	NS	250	NS	NS	NS	2,331
Northwestern District Total		NS	NS	5	960	NS	2,350	50	2,925	NS	NS	2,850	NS	NS	NS	7,553
Crafton/Eshamy	22530	NS	NS	NS	0	NS	0	0	0	NS	NS	0	NS	NS	NS	0
Eshamy District Total		NS	NS	NS	0	NS	0	0	0	NS	NS	0	NS	NS	NS	0
Chenega Is. & Dangerous P.	22620	NS	NS	0	NS	690	100	1,000	0	NS	NS	0	NS	NS	0	1,490
East Knight Is.	22630	NS	NS	0	NS	0	0	0	0	NS	NS	0	NS	NS	0	0
Bainbridge & Latouche Pass	22640	NS	NS	1	NS	75	50	0	40	NS	NS	0	NS	NS	0	112
Port Bainbridge	22650	NS	NS	0	NS	0	0	0	0	NS	NS	0	NS	NS	0	0
Southwestern District Total		NS	NS	1	NS	765	150	1,000	40	NS	NS	0	NS	NS	0	1,602
Montague Strait	22710	NS	NS	0	NS	20	50	0	120	10,000	NS	0	NS	NS	0	10,020
Green Island	22720	NS	NS	30	NS	0	250	0	20	400	NS	0	NS	NS	0	670
Montague District Total		NS	NS	30	NS	20	300	0	140	10,400	NS	0	NS	NS	0	10,690
Orca Is. & East Hawkins	22810	NS	NS	10	0	0	0	NS	0	0	NS	0	NS	NS	NS	10
Hawkins Cutoff	22820	NS	NS	0	0	300	200	NS	0	3,900	NS	0	NS	NS	NS	4,100
North Hawkins & Canoe P.	22830	NS	0	0	0	500	0	NS	0	1,700	NS	0	NS	NS	NS	1,743
Double Bay	22840	NS	NS	30	0	200	500	NS	300	10,500	NS	NS	NS	NS	NS	10,500
Johnstone Point	22850	NS	NS	10	50	0	500	NS	0	2,350	NS	NS	NS	NS	NS	2,550
Port Etches	22860	NS	NS	500	750	2,000	4,680	NS	0	33,200	NS	NS	NS	NS	NS	33,200
Southeastern District Total		NS	0	550	800	3,000	5,880	NS	300	51,650	NS	0	NS	NS	NS	52,103
TOTAL OF 9 DISTRICTS		0	4,675	13,837	19,984	10,885	62,710	43,425	27,530	98,225	NS	39,710	NS	NS	0	209,806

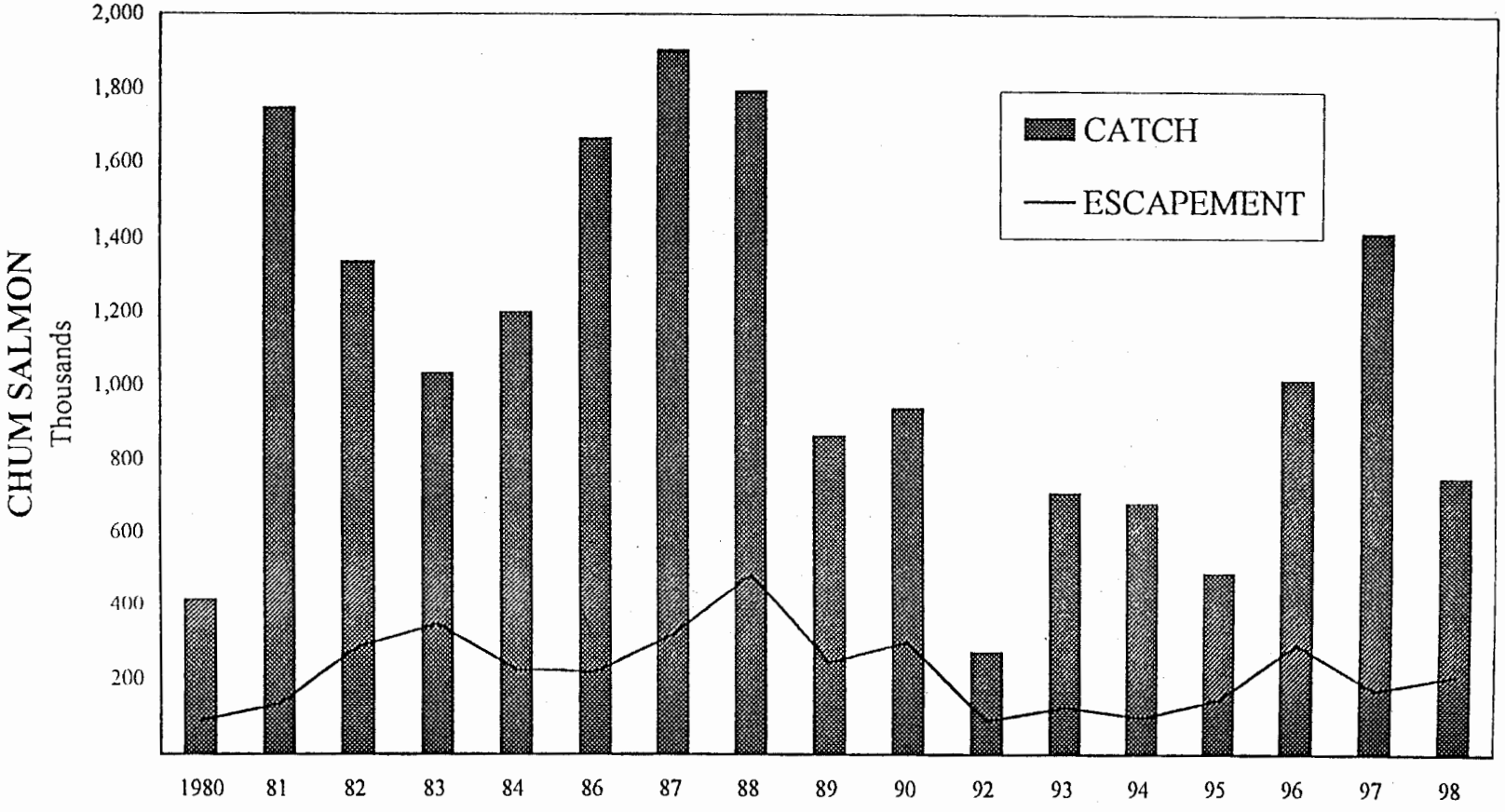
[a]There are a total of 209 streams included in the systematic aerial survey program. The survey program commences in the Eastern District where the earliest escapements in the Sound occur. Weather and conditions permitting, each stream is flown weekly. Failure to fly a survey due to run timing or bad survey conditions is denoted by NS (no survey). A notation of NC (no count) occurs when a stream is flown but no count is possible because of survey conditions (ie. water clarity). During the peak of the pink salmon run many streams are flown twice weekly to provide fisheries managers with more timely escapement data. In cases where more than one survey per week was flown the weekly observation shown in this table is the average of the two counts if observing conditions during both were good or, the maximum of the two counts if conditions during the minimum count were poor.

[b]The adjusted total is an escapement estimate based a geometric method used since the inception of the systematic survey program in the early 1960's. In this method, aerial observers are assumed to count without error or bias. Linear interpolations between observations are used to estimate numbers of fish in the stream on days when no surveys are flown. All daily observations and interpolations are summed across the season. Because fish seen on day $i+1$ may include fish seen on day i, the sum of all daily observations and interpolations must be divided by some residence time for fish in the streams to account for duplicate observations. The residence time of 17.5 days which has historically been used in this calculation is from tagging data completed by National Marine Fisheries Service on Olsen Creek in the early 1960's. Since observer bias does occur and since both observer bias and stream life are stream specific, adjusted totals in this table may be used for interannual comparisons but should not be interpreted as the true escapement.



Appendix E.11. Current year and historical weekly chum salmon escapement performance from index spawning streams, Prince William Sound, 1998.

CHUM SALMON CATCH AND ESCAPEMENT



Appendix E.12. Chum salmon catch and escapement, Prince William Sound, 1980 - 1998.

Appendix E.13. Sockeye salmon escapement counts from selected systems, Prince William Sound, 1998.

Stream Name[a]	Stream Number	Weekly Count (week ending dates)													
		06/27	07/04	07/11	07/18	07/25	08/01	08/08	08/15	08/22	08/29	09/05	09/12	09/19	09/26
Billy's Creek	218	0	150	0	0	50	600	450	200	0	0	20	0	0	0
Miner's River	244	0	0	20	220	0	1,250	750	0	0	0	50	0	0	0
Red Creek	300	0	0	0	150	0	220	180	200	0	0	0	0	0	0
Coghill River	322	0	0	500	700	0	0	0	0	0	0	0	0	0	0
Shrode Creek	476	0	0	0	0	0	800	20	300	0	0	300	0	0	0
Gumbot Creek	507	0	0	0	100	0	0	0	0	0	0	0	0	0	0
Eshamy River	511	0	0	0	200	0	300	0	0	0	0	0	0	0	0
Jackpot River	608	0	0	0	0	500	500	1,000	850	0	0	0	0	0	0
Brizgaloff Creek	623	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bainbridge	630	0	0	0	0	0	100	300	250	0	0	0	0	0	0

[a]Counts contained in this table are obtained in conjunction with the regular pink and chum aerial survey program. Many of these sockeye systems are difficult to survey by air, thus the counts do not necessarily represent total live abundance at a particular time.

Appendix E.14. Estimated age and sex composition of Prince William Sound commercial chum salmon catches, by district, 1998.

		Brood Year and Age Class					
		1996	1995	1994	1993	1992	
		0.1	0.2	0.3	0.4	0.5	Total
Eastern District							
Stratum dates:	07/08 - 09/09						
Sampling dates:	08/01 - 08/03						
Sample size:	407						
Female	Percentage of sample	0.0	4.9	41.5	14.0	0.0	60.4
	Number in catch	0	5,300	44,785	15,105	0	65,189
Male	Percentage of sample	0.7	2.7	27.8	8.1	0.2	39.6
	Number in catch	795	2,915	29,945	8,745	265	42,665
Total	Percentage of sample	0.7	7.6	69.3	22.1	0.2	100.0
	Number in catch	795	8,215	74,729	23,850	265	107,854
	Standard error	458	1,420	2,469	2,221	265	
Coghill District							
Strata Combined:	06/15 - 09/26						
Sampling dates:	06/16 - 07/29						
Sample Size:	1969						
Female	Percentage of sample	0.0	8.9	26.5	28.4	2.1	65.9
	Number in catch	0	32,867	97,804	104,658	7,802	243,131
Male	Percentage of sample	0.0	6.2	13.9	12.7	1.3	34.1
	Number in catch	0	23,054	51,205	46,732	4,794	125,786
Total	Percentage of sample	0.0	15.2	40.4	41.0	3.4	100.0
	Number in catch	0	55,921	149,010	151,390	12,597	368,917
	Standard error	0	2,973	4,773	4,800	1,852	
Montague District							
Stratum dates:	06/01 - 08/06						
Sampling dates:	06/01 - 06/25						
Sample size:	576						
Female	Percentage of sample	0.0	1.7	11.8	36.6	0.0	50.2
	Number in catch	0	3,518	23,922	74,228	0	101,668
Male	Percentage of sample	0.0	6.6	18.6	24.7	0.0	49.8
	Number in catch	0	13,368	37,642	49,954	0	100,964
Total	Percentage of sample	0.0	8.3	30.4	61.3	0.0	100.0
	Number in catch	0	16,886	61,564	124,182	0	202,632
	Standard error	0	2,336	3,886	4,116	0	
All Districts Combined							
Stratum dates:	06/01 - 09/26						
Sampling dates:	06/01 - 08/03						
Sample size:	2,952						
Female	Percentage of sample	0.0	6.1	24.5	28.6	1.1	60.3
	Number in catch	0	41,684	166,511	193,991	7,802	409,989
Male	Percentage of sample	0.1	5.8	17.5	15.5	0.7	39.7
	Number in catch	795	39,337	118,792	105,431	5,059	269,414
Total	Percentage of sample	0.1	11.9	42.0	44.1	1.9	100.0
	Number in catch	795	81,022	285,303	299,422	12,862	679,403
	Standard error	458	4,039	6,632	6,702	1,871	

Appendix E.15. Summary of periods, dates, hours open, and emergency orders issued by district, for the commercial purse seine salmon fishery, Prince William Sound, 1998. See Appendix C.11. for Unakwik District openings.

Eastern (221)		Northern (222)		Coghill (223)		Southwestern (226)		Montague (227)		Southeastern (228)		
Dates	Hours Open	Dates	Hours Open	Dates	Hours Open	Dates	Hours Open	Dates	Hours Open	Dates	Hours Open	Emergency Orders Issued
								06/01-06/02	36 [a]			2-F-E-26-98
								06/03-06/05	60 [a]			2-F-E-26-98
								06/06-06/07	36 [a]			2-F-E-26-98
								06/08-06/09	36 [a]			2-F-E-26-98
								06/10-06/12	60 [a]			2-F-E-26-98
								06/13-06/14	36 [a]			2-F-E-26-98
								06/15-06/16	36 [a]			2-F-E-26-98
								06/17-06/19	60 [a]			2-F-E-26-98
								06/20-06/21	36 [a]			2-F-E-26-98
								06/22-06/23	36 [a]			2-F-E-26-98
								06/24-06/26	60 [a]			2-F-E-26-98
								06/27-06/28	36 [a]			2-F-E-26-98
								06/29-06/30	36 [a]			2-F-E-26-98
								07/01-07/03	60 [a]			2-F-E-26-98
								07/04-07/05	36 [a]			2-F-E-26-98
								07/06-07/07	36 [b]			2-F-E-44-98
07/08-07/08	12 [a]									07/08-07/08	12 [a]	2-F-E-45-98
								07/08-07/10	60 [b]			2-F-E-44-98
								07/11-07/12	36 [b]			2-F-E-44-98
07/12-07/12	12 [a]	07/12-07/12	12 [a]							07/12-07/12	12 [a]	2-F-E-49-98
								07/13-07/14	36 [b]			2-F-E-44-98
								07/15-07/17	60 [b]			2-F-E-44-98,2-F-E-52-98
07/16-07/16	12 [b]	07/16-07/16	12 [a]							07/16-07/16	12 [a]	2-F-E-50-98
07/18-07/18	12 [c]	07/18-07/18	12 [b]							07/18-07/18	12 [a]	2-F-E-53-98
								07/18-07/19	36 [b]			2-F-E-44-98
07/22-07/22	12 [d]	07/22-07/22	12 [b]					07/22-07/22	12 [c]	07/22-07/22	12 [a]	2-F-E-55-98
07/23-07/24	36 [e]			07/23-07/24	24 [a]							2-F-E-54-98,2-F-E-56-98
07/25-07/25	12 [d]	07/25-07/25	12 [c]							07/25-07/25	12 [a]	2-F-E-57-98
07/27-07/27	12 [d]	07/27-07/27	12 [c]							07/27-07/27	12 [a]	2-F-E-60-98
				07/27-07/28	24 [b]							2-F-E-59-98
07/29-07/29	12 [d]	07/29-07/29	12 [d]							07/29-07/29	12 [a]	2-F-E-62-98
07/31-07/31	12 [b]	07/31-07/31	12 [e]	07/31-07/31	12 [c]					07/31-07/31	12 [a]	2-F-E-63-98
08/02-08/02	12 [f]	08/02-08/02	12 [e]					08/02-08/02	12 [d]	08/02-08/02	12 [a]	2-F-E-64-98
08/04-08/04	12 [f]	08/04-08/04	12 [e]			08/04-08/04	12 [a]	08/04-08/04	12 [e]	08/04-08/04	12 [a]	2-F-E-66-98
08/06-08/06	12 [f]	08/06-08/06	12 [f]	08/06-08/06	12 [c]	08/06-08/06	12 [a]	08/06-08/06	12 [e]	08/06-08/06	12 [a]	2-F-E-67-98,2-F-E-76-98
08/09-08/09	12 [g]	08/09-08/09	12 [f]	08/09-08/09	12 [d]	08/09-08/09	12 [b]					2-F-E-71-98
08/11-08/11	12 [g]	08/11-08/11	12 [f]	08/11-08/11	12 [d]	08/11-08/11	12 [c]					2-F-E-73-98
08/13-08/13	12 [g]	08/13-08/13	12 [g]	08/13-08/13	12 [d]	08/13-08/13	12 [d]					2-F-E-75-98
08/15-08/15	12 [g]	08/15-08/15	12 [g]	08/15-08/15	12 [d]	08/15-08/15	12 [e]					2-F-E-77-98
08/17-08/17	12 [g]	08/17-08/17	12 [g]	08/17-08/17	12 [d]	08/17-08/17	12 [e]					2-F-E-79-98
08/19-08/19	12 [g]	08/19-08/19	12 [h]	08/19-08/19	12 [e]	08/19-08/19	12 [e]					2-F-E-80-98
08/20-08/21	36 [g]	08/20-08/21	36 [g]	08/20-08/21	36 [e]	08/20-08/21	36 [f]					2-F-E-81-98
08/22-08/23	36 [g]	08/22-08/23	36 [h]	08/22-08/23	36 [e]	08/22-08/23	36 [f]					2-F-E-85-98
08/24-08/25	36 [g]	08/24-08/25	36 [h]	08/24-08/25	36 [e]	08/24-08/25	36 [f]					2-F-E-85-98
08/26-08/27	36 [g]	08/26-08/27	36 [i]	08/26-08/27	36 [e]	08/26-08/27	36 [f]					2-F-E-86-98
08/28-08/29	36 [g]	08/28-08/29	36 [i]	08/28-08/29	36 [f]	08/28-08/29	36 [f]	08/28-08/29	36 [e]			2-F-E-87-98
08/30-08/31	36 [g]	08/30-08/31	36 [i]	08/30-08/31	36 [f]	08/30-08/31	36 [f]	08/30-08/31	36 [e]			2-F-E-87-98
09/01-09/02	36 [g]	09/01-09/02	36 [i]	09/01-09/02	36 [f]	09/01-09/02	36 [f]	09/01-09/02	36 [e]			2-F-E-87-98
09/03-09/04	36 [g]	09/03-09/04	36 [i]	09/03-09/04	36 [f]	09/03-09/04	36 [g]	09/03-09/04	36 [e]			2-F-E-88-98
09/05-09/06	36 [g]	09/05-09/06	36 [i]	09/05-09/06	36 [f]	09/05-09/06	36 [g]	09/05-09/06	36 [e]			2-F-E-88-98
09/07-09/08	36 [g]	09/07-09/08	36 [i]	09/07-09/08	36 [f]	09/07-09/08	36 [g]	09/07-09/08	36 [e]			2-F-E-88-98
09/08-09/12	60 [h]											2-F-E-88-98, 2-F-E-89-98
												2-F-E-90-98, 2-F-E-91-98
		09/09-09/10	36 [i]	09/09-09/10	36 [f]	09/09-09/10	36 [g]	09/09-09/10	36 [e]			2-F-E-88-98

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Appendix E.15. (Page 2 of 3)

Eastern (221)		Northern (222)		Coghill (223)		Southwestern (226)		Montague (227)		Southeastern (228)		
Dates	Hours Open	Dates	Hours Open	Dates	Hours Open	Dates	Hours Open	Dates	Hours Open	Dates	Hours Open	Emergency Orders Issued
09/13-09/30	420 [i]	09/11-09/12 09/13-09/30	36 [i] 420 [j]	09/11-09/12 09/13-09/30 09/30-10/04	36 [f] 420 [g] 96 [h]	09/11-09/12 09/13-09/30	36 [g] 420 [h]	09/11-09/12	36 [e]			2-F-E-88-98 2-F-E-92-98 2-F-E-93-98

Eastern District

[a] Eastern District waters south of the latitude of Black Point, were open. All anadromous salmon stream closures remained in effect.

[b] Waters of the Eastern District west of 146° 30.62' W. longitude within Port Valdez were open. All anadromous salmon stream closures remained in effect.

[c] Within the Eastern District, only the waters of Valdez Arm south of a line from Tongue Point to the yellow regulatory marker at the southern entrance of Sawmill Bay were open. Jack Bay and the waters of Port Valdez were closed.

[d] Eastern District waters, west of 146° 30.62' W. longitude within Port Valdez, were open. Waters of Galena Bay inside the yellow regulatory markers remained closed.

[e] Open waters within the Eastern District included the Valdez Narrows Subdistrict inside a line from Potato Point to Entrance Point and west of 146° 30.62' W. longitude.

[f] Eastern District waters, including the Valdez Narrows Subdistrict south of the latitude of Middle Rock light, were open.

[g] Open waters included the Eastern District except for the Valdez Narrows Subdistrict north of the latitude of Middle Rock light and waters of Sawmill Bay, Jack Bay, Galena Bay, Landlocked Bay, Irish Cove, Port Gravina, St Mathews Bay, Sheep Bay and Olsen Bay. The waters of the Port Fidalgo Subdistrict were also closed.

[h] Within the Eastern District, open waters included the Valdez Narrows Subdistrict, except within 200 yards of the Solomon Gulch Creek weir. Waters Port Valdez east of a line from the grain elevators to the regulatory marker east of the hatchery were also closed. The small boat harbor was open from 3:00 PM to 4:00 PM.

[i] Within the Eastern District, only the Valdez Narrows Subdistrict, including the Solomon Gulch Hatchery Terminal Harvest Area (THA) and Special Harvest Area (SHA), was open.

Northern District

[a] Northern District waters east of the longitude of Unakwik Point were open. All anadromous salmon stream closures remained in effect.

[b] Open waters included the Northern District except for the Perry Island Subdistrict.

[c] Waters of the Northern District east of Granite Point were open.

[d] Waters of the Northern District east of Granite Point were open. The waters of Granite Bay, Cedar Bay, Wells Bay and Eaglek Bay, inside the yellow regulatory markers were also open.

[e] Northern District waters, east of Granite Point, were open. The waters of Granite Bay, Cedar Bay, Wells Bay and Eaglek Bay, inside the yellow regulatory markers were also open. Within Eaglek Bay, the regulatory closed waters north of 60° 53.46' N. latitude were not in effect. All anadromous salmon stream closures were in effect.

[f] Open waters included the Northern District except for the Perry Island Subdistrict and the waters of Unakwik Inlet north of the latitude of the yellow regulatory marker on the south shore of the entrance to Siwash Bay.

[g] Waters of the Northern District, up to a line of buoys in front of the barrier seine at Cannery Creek Hatchery were open. Anadromous salmon stream closures in the cove south of the barrier seine in the Cannery Creek Hatchery SHA and inside Hidden Bay on Culross Island were not in effect.

[h] All waters of the Northern District, excluding the Cannery Creek Hatchery SHA were open. Anadromous salmon stream closures in the cove south of the barrier seine and inside Hidden Bay on Culross Island were not in effect.

[i] Northern District waters, up to a line of buoys in front of the barrier seine at Cannery Creek Hatchery, were open. Anadromous salmon stream closures inside Hidden Bay on Culross Island were not in effect.

[j] Within the Northern District, only the waters of the Cannery Creek Hatchery THA and SHA, up to a line of buoys in front of the barrier seine, were open. Waters of Hidden Bay, on Culross Island, were also open.

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Coghill District

[a] Open waters included the Coghill District, except for the Esther Subdistrict and the Noerenberg Hatchery THA and SHA.

[b] The Coghill District, including the Esther Subdistrict and Noerenberg Hatchery THA and SHA were open.

[c] Open waters included the Coghill District except for the Esther Subdistrict and the Noerenberg Hatchery THA and SHA. The waters of Pigot Bay, Hummer Bay and Bettles Bay, inside the yellow regulatory markers, were also closed.

[d] Within the Coghill District, only the Esther Subdistrict was open. The Noerenberg Hatchery THA and SHA were closed.

[e] Open waters, within the Coghill District, included only the Esther Subdistrict up to a line a buoys in front of the Noerenberg Hatchery barrier seine.

[f] The Coghill District, including the Noerenberg Hatchery THA and SHA, up to a line of buoys in front of the hatchery barrier seine, was open.

[g] Within the Coghill District, only the waters of the Noerenberg Hatchery THA and SHA, up to a line of buoys in front of the barrier seine, were open.

[h] Within the Coghill District, only the waters of the Noerenberg Hatchery THA and SHA were open.

Southwestern District

[a] In the Southwestern District, only the waters of the Point Elrington Subdistrict were open. All anadromous stream closures remained in effect.

[b] Open waters within the Southwestern District included only the Point Elrington Subdistrict and the Port San Juan Subdistrict, up to a line of buoys in the front of the barrier seine in front of the Armin F. Koenig (AFK) Hatchery, were open.

[c] Open waters within the Southwestern District included only the Point Elrington Subdistrict and the Port San Juan Subdistrict, outside a line running from a cluster of buoys on a piling at Port Ashton to the juvenile salmon net pens in front of AFK Hatchery.

[d] Within the Southwestern District, only the waters of the Point Elrington and Port San Juan Subdistricts were open. The AFK Hatchery SHA was not open.

[e] In the Southwestern District, only the waters south of the latitude of Dual Head, near the entrance to Whale Bay, at 60° 15.00' N. latitude and south of the Bay of Isles, at 60° 23.00' N. latitude, were open. The AFK Hatchery SHA was closed.

[f] Within the Southwestern District, only the waters south of the latitude of Dual Head, near the entrance to Whale Bay, at 60° 15.00' N. latitude and south of the Bay of Isles, at 60° 23.00' N. latitude, and the AFK Hatchery SHA, up to a line of buoys in front of the barrier seine, were open.

[g] In the Southwestern District, only the waters south of the latitude of Dual Head, near the entrance to Whale Bay, at 60° 15.00' N. latitude and south of the Bay of Isles, at 60° 23.00' N. latitude, and the AFK Hatchery SHA and THA, up to a line of buoys in front of the barrier seine, were open.

[h] Within the Southwestern District, only the waters of the AFK Hatchery THA and SHA, up to a line of buoys in front of the barrier seine, were open.

Montague District

[a] Within the Montague District, only the waters of the Port Chalmers Subdistrict were open. Regulatory waters and anadromous salmon stream closures were not in effect

[b] Open waters within the Montague District included only the Port Chalmers Subdistrict. Stockdale Harbor regulatory waters and anadromous salmon stream closures were in effect. Port Chalmers regulatory waters closures were not in effect.

[c] In the Montague District, only the waters of the Port Chalmers Subdistrict were open. Stockdale Harbor regulatory waters and anadromous salmon stream closures were in effect. Port Chalmers regulatory waters closures were not in effect from 12 Noon until 2:00 P.M.

[d] Within the Montague District, only the Port Chalmers regulatory waters east and north of the buoys marking the chum salmon net pen site in Port Chalmers were open.

[e] Open waters included the entire Montague District. All anadromous salmon stream closures remained in effect.

Southeastern District

[a] Open waters included all of the Southeastern District. All anadromous salmon stream closures remained in effect.

APPENDIX F: HATCHERY RETURNS

Appendix F.1. Daily salmon sales harvests and sex ratios at the Wally Noerenberg Hatchery 1998. Broodstock and sex ratio data provided by the Prince William Sound Aquaculture Corporation.

HATCHERY SALES HARVEST IN NUMBERS OF FISH						
Date	Pink Salmon % Female	Pinks	Chinook	Chum	Coho	Sockeye
05/29		0	0	2,150	0	0
05/30		0	0	1,055	0	0
06/02		0	0	2,103	0	0
06/05		0	0	1,057	0	0
06/06		0	0	1,647	0	0
06/07		0	0	270	0	0
06/08		0	0	4,107	0	0
06/09		0	0	8,307	0	0
06/10		0	223	17,976	0	0
06/11		0	119	46,051	0	0
06/12		0	0	22,086	0	0
06/13		0	268	48,429	0	0
06/14		0	0	19,612	0	0
06/15		0	183	6,370	0	0
06/16		0	0	18,529	0	0
06/17		0	0	15,219	0	0
06/23		0	185	18,740	0	0
06/24		0	0	1,038	0	0
06/25		0	0	1,718	0	0
06/26		0	0	4,567	0	0
06/27		0	0	69	0	0
06/30		0	0	2,378	0	20
07/01		0	0	2,140	0	0
07/05		0	0	7,889	0	0
07/06		0	0	14,684	0	0
07/08		0	0	7,400	0	0
07/09		0	0	7,566	0	0
07/10		0	0	5,489	0	0
07/11		0	0	3,043	0	0
07/13		0	0	12,545	0	0
07/15		0	0	12,470	0	0
07/17	12.5%	174	0	15,667	0	0
07/18	0.1%	953	0	7,367	0	0
07/19	10.8%	1,324	0	31,131	0	0
07/20	12.2%	1,212	0	18,075	0	0
07/21	4.1%	3,312	0	29,001	0	0
07/22	11.8%	1,570	0	16,287	0	0
07/23	6.9%	3,698	0	13,952	0	0

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HATCHERY SALES HARVEST IN NUMBERS OF FISH

Date	Pink Salmon % Female	Pinks	Chinook	Chum	Coho	Sockeye
07/24	5.5%	6,540	0	6,548	0	0
07/25	9.7%	1,730	0	10,820	0	0
07/26	9.2%	7,177	0	5,032	0	0
07/28	9.2%	0	0	9,419	0	0
07/29	15.0%	13,480	0	406	0	0
07/30	12.2%	34,672	0	1,185	0	0
07/31	14.4%	39,530	0	737	0	0
08/01		4,238	0	1,510	0	0
08/03		57,974	0	2,711	0	0
08/04	17.4%	43,849	0	506	0	0
08/05	20.4%	130,354	0	2,114	0	0
08/06	23.1%	90,131	0	0	0	0
08/07		74,782	0	275	0	0
08/08	29.5%	227,936	0	810	0	0
08/09	30.7%	33,884	0	0	0	0
08/10	35.6%	246,382	0	0	0	0
08/11	36.0%	136,717	0	0	0	0
08/12	39.5%	229,905	0	0	0	0
08/13	41.5%	122,594	0	0	0	0
08/14	42.7%	230,108	0	0	0	0
08/15		109,650	0	0	0	0
08/16	43.8%	253,241	0	0	0	0
08/17	48.1%	94,569	0	0	0	0
08/18	51.5%	209,296	0	0	0	0
08/19	50.4%	26,633	0	0	0	0
Totals		2,437,615	978	490,257		20

SALES SUMMARY:

	Pink	Chinook	Chum	Coho	Sockeye
Pounds Sold	9,140,484	18,063	3,969,268		120
Average Weights:	3.75	18.47	8.10		6.00
Roe Sales/Lbs:	13,767		28,585		

BROODSTOCK SUMMARY:

	Pink	Chinook	Chum	Coho
Fish spawned at hatchery	160,843	0	104,427	
Green/bad/excess	70,046	0	50,954	
Eggtake mortality	34,932	0	24,494	
Total available broodstock	**265,821**	**0**	**179,875**	**0**
Surplus processed for roe/excessed	0	0	0	0
Estimated unharvested return	900,000	0	0	0
Estimated return to hatchery	1,165,821	0	179,875	0

Appendix F.2. Daily salmon sales harvests and sex ratios at the Armin F. Koernig Hatchery, 1998. Broodstock and and sex ratio data provided by the Prince William Sound Aquaculture Corporation.

HATCHERY SALES HARVESTS IN NUMBERS OF FISH

	Pink Salmon	
Date	% Female	Pinks
07/29	4.8%	52,147
07/30	3.8%	46,217
07/31	5.0%	22,549
08/01		45,573
08/02		65,221
08/03		63,970
08/04	14.7%	107,266
08/05	17.0%	62,174
08/06	19.0%	244,003
08/08	27.5%	125,207
08/10	31.5%	88,584
08/11	34.5%	32,060
08/12	36.4%	82,417
08/14	48.7%	170,214
08/16	54.4%	110,624
08/18	43.3%	250,152
08/19	49.6%	66,578
Totals		1,634,956

SALES SUMMARY:		Pinks
Pounds Sold		5,638,526
Average Weight:		3.45
Roe Sales	25,165 lbs	43,788

PINK BROODSTOCK SUMMARY:	
Spawned at hatchery	173,313
Excessed/green/bad	69,593
Fishway/system mortality	0
Total available broodstock	**242,906**
Surplus processed fro roe/excessed	0
Estimated unharvested return	300,000
Estimated return to hatchery	542,906

Appendix F.3. Daily pink salmon sales harvests and sex ratios at the Solomon Gulch Hatchery, 1998. Sex ratios and broodstock data provided by Valdez Fisheries Development Association, Inc.

HATCHERY SALES HARVESTS IN NUMBERS OF FISH

Date	Pink	Chum	Coho	Sockeye	Chinook
06/20	432	97	1	0	0
06/22	3,241	340	0	0	0
06/23	4,284	0	0	0	0
06/25	7,086	477	0	0	0
06/27	14,261	155	33	18	0
06/28	37,009	283	0	3	1
06/29	57,997	140	3	15	0
06/30	63,774	53	0	7	0
07/01	100,327	61	3	5	0
07/02	110,427	140	0	0	0
07/03	148,215	242	0	7	0
07/04	212,516	151	0	10	0
07/05	121,907	180	0	0	0
07/06	254,888	236	2	0	0
07/07	193,058	139	4	8	0
07/08	228,968	162	1	3	0
07/09	242,165	73	0	0	0
07/10	280,627	66	0	0	0
07/11	213,382	112	2	4	1
07/12	133,034	4	2	0	0
07/13	185,814	156	0	0	0
07/14	219,275	84	0	0	0
07/15	141,717	0	0	0	0
07/17	20,194	0	0	0	0
07/19	52,482	12	0	0	0
07/21	63,394	504	36	5	0
07/23	7,611	55	0	0	0
07/24	8,622	19	0	0	0
07/27	14,478	39	0	0	0
07/28	12,107	68	0	0	0
07/29	12,692	81	0	0	0
07/30	11,728	57	0	0	0
07/31	13,907	57	0	0	0
08/03	16,608	165	0	0	0
08/04	15,510	166	0	0	0
08/05	19,193	153	0	0	0
08/06	19,891	200	0	0	0
08/07	14,906	286	0	0	0
08/10	14,702	242	0	0	0
08/11	18,416	205	0	0	0
08/12	24,759	377	0	0	0
08/13	14,209	238	0	0	0
08/14	15,235	426	0	0	0
08/18	15,235	426	0	0	0
08/19	14,591	1,540	0	0	0
08/20	8,938	545	0	0	0
08/24	10,505	1,317	0	0	0
08/25	8,130	2,985	0	0	0
08/26	2,178	2,111	0	0	0
08/27	2,454	3,029	0	0	0
08/28	906	1,949	0	0	0
08/31	265	3,456	0	0	0

-continued-

HATCHERY SALES HARVESTS IN NUMBERS OF FISH

Date	Pink	Chum	Coho	Sockeye	Chinook
09/01	48	2,014	0	0	0
09/03	50	960	1,928	0	0
09/04	0	253	2,153	0	0
09/08	0	129	888	0	0
09/09	0	126	3,064	0	0
09/10	0	165	3,355	0	0
09/11	0	550	1,125	0	0
09/17	0	386	2,787	0	0
09/25	0	24	3,583	0	0
10/05	0	0	449	0	0
10/12	0	0	780	0	0
Totals	3,428,348	28,666	20,199	85	2

SALES SUMMARY:					
Total Pounds Sold:	13,320,287	232,558	182,801	480	34
Average Weights:	3.89	8.11	9.05	5.65	17.00
Roe Sales (lbs.)	19,920	16,954	15,958		

PINK BROODSTOCK SUMMARY:	
Spawned at hatchery	172,662
Green/overripe/excessed/roe sales	65,191
System mortalities	34,256
Total available broodstock	**272,109**
Estimated creek spawners	20,329
Fish estimated remaining above weir	0
Estimated return to hatchery	292,438

COHO BROODSTOCK SUMMARY:	
Spawned at hatchery	822
Green/overripe/excessed/roe sales	304
System mortalities	1,635
Total available broodstock	**2,761**
Estimated creek/bay spawners	119
Fish estimated remaining above weir	0
Estimated return to hatchery	2,880

Appendix F.4. Daily pink salmon sales harvests and sex ratios at the Cannery Creek Hatchery, 1998. Broodstock and sex ratio data provided by the Prince William Sound Aquaculture Corporation.

HATCHERY SALES IN NUMBERS OF FISH

Date	Pinks	% Female
07/29	1,898	5.9%
07/30	23,620	11.4%
07/31	29,979	15.7%
08/01	66,727	
08/02	94,659	
08/03	77,327	
08/04	93,081	22.1%
08/05	121,301	21.6%
08/06	74,112	28.4%
08/07	109,003	
08/08	176,386	36.2%
08/09	109,135	29.5%
08/10	145,567	39.5%
08/18	153,136	52.5%
08/19	48,376	50.2%
Totals	1,324,307	

SALES SUMMARY:	
Pounds Sold:	4,589,128
Average Weight:	3.47
Roe Sales (lbs)	6,939

PINK BROODSTOCK SUMMARY:	
Spawned at hatchery	154,503
Green/bad/excess	33,548
Mortality	117,828
Total available broodstock	**305,879**
Surplus processed for roe	0
Estimated unharvested return	600,000
Estimated return to hatchery	905,879

Appendix F.5. Daily salmon sales harvests at the Main Bay Hatchery, 1998. Broodstock data provided by the Prince William Sound Aquaculture Corporation.

HATCHERY SALES HARVEST IN NUMBERS OF FISH

Date	Sockeye	Pink	Chum	Chinook
06/22	8,413	0	292	0
06/26	8,459	0	0	0
07/03	3,926	0	0	0
07/07	7,893	0	0	0
07/11	13,176	0	0	0
07/16	14,704	0	0	0
07/20	2,402	0	0	0
07/23	35,934	0	0	0
07/25	16,466	0	0	0
Totals	111,373	0	292	0

SALES SUMMARY:	Sockeye	Pink	Chum	Chinook
Pounds Sold	769,357		2,688	
Average Weights:	6.91		9.21	

MAIN BAY SOCKEYE BROODSTOCK SUMMARY:

Main Bay Mid Stock/Coghill Lake	
Good	4,968
Green/overripe	47
System mortalities/excessed/bad	5,581
Total available broodstock	**10,596**

Appendix F.6. Sales harvests of salmon by species from private nonprofit hatcheries as reported on fish tickets, Prince William Sound, 1977 - 1998.

		Catch by Species [a]				
Year	Hatchery [b]	Sockeye	Coho	Pink	Chum	Total
1977	AFK			15,545		15,545
1978	AFK			114,188		114,188
1979	AFK			223,748		223,748
1980	AFK, N			346,728	6	346,734
1981	AFK			707,037	118	707,155
1982	AFK			1,354,732		1,354,732
1983	AFK			616,963		616,963
1984	AFK, SG			415,393	4,886	420,279
1985	AFK, SG			1,209,960	3,840	1,213,800
1986	AFK, SG		2,156	905,464	20,683	928,303
1987[c]	AFK, SG, E, CC		7,015	2,691,190	2,549	2,700,754
1988	AFK, SG, E		6,110	1,632,701	42,694	1,681,505
1989[d]	AFK, SG, WNH, CC, MB		52,307	7,812,373	131,362	7,996,042
1990	AFK, SG, WNH, CC		14,199	8,732,658	24,554	8,771,411
1991	AFK, SG, WNH, CC		52,625	5,955,561	13,471	6,021,657
1992	AFK, SG, WNH, CC, MB	163,086	73,530	3,049,394	57,392	3,343,402
1993	AFK, SG, WNH, CC, MB	113,738	3,259	2,212,403	475,148	2,804,548
1994	AFK, SG, WNH, CC, MB	79,541	22,454	10,521,439	380,365	11,003,799
1995	AFK, SG, WNH, CC, MB	63,326	13,248	5,100,819	231,539	5,408,932
1996[e]	AFK, SG, WNH, CC, MB	86,911	38,945	8,291,205	1,066,683	9,483,744
1997	AFK, SG, WNH, CC, MB,GH	266,335	2,933	9,854,675	811,179	10,935,122
1998	AFK, SG, WNH, CC, MB,GH	148,288	20,199	8,825,226	519,215	9,512,928
TOTAL		921,225	308,980	80,589,402	3,785,684	85,605,291

[a] Includes salmon harvested by private nonprofit hatcheries in Prince William Sound to generate revenues to offset operating costs. Does not include carcass sales or fish processed only for roe extraction after egg takes.

[b] Hatcheries:
AFK = Armin F. Koernig (PWSAC) (formerly Port San Juan Hatchery)
E = Esther Hatchery (PWSAC), renamed WNH in 1989
SG = Solomon Gulch Hatchery (VFDA)
N = NERKA Inc.
CC = Cannery Creek (PWSAC)
WHN = Wally Noerenberg Hatchery (PWSAC) (formerly Esther Hatchery)
MB = Main Bay (PWSAC) (formerly operated by ADF&G)
GH = Gulkana Hatchery (Crosswind Lake Weir)

[c] PWSAC administered a sales harvest at the state owned Cannery Creek hatchery. A majority of the coho salmon sold were carcasses and surplus brood fish from the Solomon Gulch hatchery.

[d] PWSAC administered a sales harvest at the state owned Main Bay Hatchery to harvest a surplus of chum salmon due to closure of the common property fishery.

[e] Includes 269,848 pink salmon Peter Pan Seafoods bought from VFDA and then discarded after roe salvage. Also includes approximately 250,000 chum processed by PWSAC for meal production and roe salvage.

Appendix F.7. Summary of pink and chum salmon returns to Prince William Sound hatcheries, 1998.

Pink salmon returns to P.W.S. hatcheries from otoliths[a]

Hatchery	1997 Fry Release (millions)	1998 Forecast Return	Estimated Total Return	Marine Survival	Estimated C.P.F. Contribution	Estimated Sales Harvest Contribution[b]	Escmt. and Brood[c]	Eggs Taken (millions)
Solomon Gulch	188.9	7,200,000	4,638,175	2.5%	1,226,679	3,076,945	334,551	231,898,941
A. F. Koernig	52.4	2,500,000	6,963,470	13.3%	5,037,454	1,582,038	343,978	160,618,374
Wally Noerenberg	106.4	5,300,000	7,508,617	7.1%	4,817,354	2,427,120	264,143	130,197,003
Cannery Creek	136.8	5,100,000	6,479,103	4.7%	4,869,014	1,305,144	304,945	153,066,787
Total Pink Return	484.5	20,100,000	25,589,365	5.3%	15,950,501	8,391,247	1,247,617	675,781,105

Chum salmon returns to P.W.S. hatcheries

Hatchery	1998 Forecast Return	Estimated Total Return	Estimated C.P.F. Comm Catch	Sales Harvest[b]	Escmt. and Brood[c]	Eggs Taken (millions)
Solomon Gulch	60,000	30,800	3,900	28,266	0	0
Wally Noerenberg	230,000	918,241	247,295	490,257	179,875	111,129,724
Port Chalmers	300,000	202,347	202,347	0	0	0
Total Chum Return	590,000	949,041	251,195	518,523	179,875	111,129,724

[a] Contribution estimates of pink and chum salmon from PWS hatcheries are based on analysis of otolith recoveries and location of catch as reported on fish tickets.

[b] Does not include carcass sales which are part of the broodstock.

[c] Includes broodstock, overmature/green fish, holding mortalities, excess fish and fish processed for roe extraction. Does not include watershed spawners, unseen mortalities or fish remaining in the bay.

Appendix F.8. Historical catch contributions, coded wire tag (CWT) releases, and total returns of pink salmon to Armin F. Koernig Hatchery, Prince William Sound, 1977 - 1998.

Brood Year	Return Year	Fry Release [a]	CWT Applied to Fry Release [b]	BroodStock [a]	Total Cost Recovery Harvest [c]	Hatchery Contribution to CR Harvest	Hatchery Contribution to Other Harvest [d]	Hatchery Contribution to the CPF [a]	Total Hatchery Return	Estimated Marine Survival
1975	1977	1,000,000	0	16,112	15,545	7,745	0	4,000	27,857	2.79%
1976	1978	11,010,577	0	40,432	114,188	114,188	0	0	154,620	1.40%
1977	1979	16,950,784	0	54,207	223,748	223,748	0	275,000	552,955	3.26%
1978	1980	22,774,739	0	108,061	346,728	346,728	0	1,038,700	1,493,489	6.56%
1979	1981	21,500,000	0	198,901	707,037	707,037	0	1,358,907	2,264,845	10.53%
1980	1982	69,787,000	0	164,545	1,354,732	1,354,732	0	3,615,086	5,134,363	7.36%
1981	1983	70,118,000	0	124,278	608,002	608,002	0	2,990,225	3,722,505	5.31%
1982	1984	87,384,533	0	186,431	387,146	387,146	0	2,226,423	2,800,000	3.20%
1983	1985	76,746,000	0	271,513	986,141	986,141	0	3,772,962	5,030,616	6.55%
1984	1986	103,531,000	0	277,706	814,072	814,072	0	3,872,222	4,964,000	4.79%
1985	1987	111,266,808	207,756	389,610	1,237,332	1,237,332	0	5,986,219 [e]	7,613,161	6.84%
1986	1988	116,117,645	0	281,660	646,833	646,833	0	5,148,000	6,076,493	5.23%
1987	1989	110,036,728	209,063	124,045	3,715,739	2,474,884	0	29,698	2,628,627	2.39%
1988	1990	160,486,843	323,030	123,021	2,669,519	1,297,941	0	5,388,128	6,809,090	4.24%
1989	1991	113,843,914	202,265	244,589	1,089,168	650,686	339,236	3,883,058	5,117,569	4.50%
1990	1992	115,762,047	201,835	151,923	822,411	637,090	11,209	1,602,127	2,402,349	2.08%
1991	1993	112,830,588	202,421	211,257	357,058	239,178	10,516	1,095,084	1,556,035	1.38%
1992	1994	113,337,345	197,729	211,884	1,160,359	950,493	18,673	563,092	1,744,142	1.54%
1993	1995	92,078,951	178,858	176,203	545,624	468,351	2,563	208,931	856,048	0.93%
1994	1996	108,583,112	181,124	0	118	4,128	0	1,762,753	1,766,881	1.63%
1995	1997	108,636,976 [f]	183,098	0	3,206,633	3,187,636	0	3,418,049	6,605,685	6.08%
1996	1998	52,384,532 [g]	0	343,978	1,634,956	1,582,038		5,037,454	6,963,470	13.30%

[a] Data for BY 1985 and 1987 - 1995 provided by the ADF&G CWT project. PWSAC provided data for all other years. Starting in 1994, broodstock number includes fish processed for roe as reported by PWSAC.

[b] Data for all years provided by the ADF&G CWT project. Sales numbers include inter-hatchery contributions.

[c] Data for all years from ADF&G fishticket information.

[d] Includes fish donated and/or discarded in 1991. Data provided by the ADF&G CWT project.

[e] Contribution estimate from Geiger, 1990.

[f] All BY 1995 fry released bore thermal otolith marks.

[g] All BY 1996 fry released bore thermal otolith marks.

Appendix F.9. Historical catch contributions, coded wire tag (CWT) releases, and total returns of pink salmon to Cannery Creek Hatchery, Prince William Sound, 1977 - 1998.

Brood Year	Return Year	Fry Release [a]	CWT Applied to Fry Release [b]	Broodstock [a]	Total Cost Recovery Harvest [c]	Hatchery Contribution to CR Harvest	Hatchery Contribution to Other Harvest [d]	Hatchery Contribution to the CPF [a]	Total Hatchery Return	Estimated Marine Survival
1975	1977	0	0	0	0	0	0	0	0	0.00%
1976	1978	0	0	0	0	0	0	0	0	0.00%
1977	1979	0	0	0	0	0	0	0	0	0.00%
1978	1980	2,826,000	0	37,000	0	0	0	53,348	90,348	3.20%
1979	1981	2,694,000	0	69,600	0	0	0	71,840	141,440	5.25%
1980	1982	21,289,000	0	75,400	0	0	0	688,814	764,214	3.59%
1981	1983	13,933,000	0	121,300	0	0	0	348,141	469,441	3.37%
1982	1984	22,123,000	0	77,000	0	0	0	1,062,000	1,139,000	5.15%
1983	1985	31,200,000	0	172,000	0	0	0	2,422,000	2,594,000	8.31%
1984	1986	36,500,000	0	71,100	0	0	0	781,900	853,000	2.34%
1985	1987	31,115,388	218,436	308,940	41,002	41,002	0	1,781,784 [e]	2,131,726	6.85%
1986	1988	42,600,000	0	127,688	0	0	0	100,000	227,688	0.53%
1987	1989	95,571,232	172,591	127,764	631,284	500,726	0	4,912,175	5,540,665	5.80%
1988	1990	58,969,539	125,869	190,255	552,498	489,983	0	1,854,059	2,534,297	4.30%
1989	1991	143,662,511	248,193	348,539	765,430	686,043	755,077	6,711,637	8,501,296	5.92%
1990	1992	141,519,850	244,204	168,864	363,667	306,132	3,347	1,041,373	1,519,716	1.07%
1991	1993	132,166,231	160,733	183,557	172,824	92,451	0	436,215	712,223	0.54%
1992	1994	140,030,396	232,526	398,835	3,558,438	2,422,854	18,973	6,800,224	9,640,886	6.88%
1993	1995	84,616,614	141,104	219,139	1,036,611	882,427	63,271	3,908,063 [f]	5,072,900	6.00%
1994	1996	130,339,451	217,554	191,798	1,805,159	1,073,004	0	5,251,870	6,516,672	5.00%
1995	1997	140,441,131 [g]	224,251	235,297	1,872,493	1,137,396	0	3,140,428	4,513,121	3.21%
1996	1998	136,838,852 [h]	0	304,945	1,324,307	1,305,144		4,869,014	6,479,103	4.70%

[a] Data for BY 1985 and 1987 - 1995 provided by the ADF&G CWT project. PWSAC provided data for all other years. Starting in 1994, brood stock number includes fish processed for roe as reported by PWSAC.

[b] Data for all years provided by the ADF&G CWT project. Sales numbers include inter-hatchery contributions.

[c] Data for all years from ADF&G fishticket information.

[d] Includes fish donated and/or discarded in 1991. Data provided by the ADF&G CWT project.

[e] Contribution estimate from Geiger, 1990.

[f] Contribution estimate adjusted for CWT losses in CCH stock.

[g] All BY 1995 fry released bore thermal otolith marks.

[h] All BY 1996 fry released bore thermal otolith marks.

Appendix F.10. Historical catch contributions, coded wire tag (CWT) releases, and total returns of pink salmon to Wally Noerenberg Hatchery, Prince William Sound, 1977 - 1998.

Brood Year	Return Year	Fry Release [a]	CWT Applied to Fry Release [b]	Broodstock [a]	Total Cost Recovery Harvest [c]	Hatchery Contribution to CR Harvest	Hatchery Contribution to Other Harvest [d]	Hatchery Contribution to the CPF [a]	Total Hatchery Return	Estimated Marine Survival
1975	1977	0	0	0	0	0	0	0	0	0.00%
1976	1978	0	0	0	0	0	0	0	0	0.00%
1977	1979	0	0	0	0	0	0	0	0	0.00%
1978	1980	0	0	0	0	0	0	0	0	0.00%
1979	1981	0	0	0	0	0	0	0	0	0.00%
1980	1982	0	0	0	0	0	0	0	0	0.00%
1981	1983	0	0	0	0	0	0	0	0	0.00%
1982	1984	0	0	0	0	0	0	0	0	0.00%
1983	1985	0	0	0	0	0	0	0	0	0.00%
1984	1986	0	0	0	0	0	0	0	0	0.00%
1985	1987	34,525,575	220,369	276,947	305,946	305,946	0	2,429,062 [e]	3,011,955	8.72%
1986	1988	75,932,715.0	0	222,790	443,828	443,828	0	3,200,000	3,866,618	5.09%
1987	1989	195,607,739	280,479	390,227	2,786,348	2,121,349	0	3,207,218	5,718,794	2.92%
1988	1990	159,713,663	313,004	282,022	3,364,172	2,991,569	0	10,280,000	13,553,591	8.49%
1989	1991	235,378,496	467,587	456,061	1,044,093 [f]	964,618	2,479,492	7,790,063	11,690,234	4.97%
1990	1992	214,941,068	395,313	230,590	518,652	442,702	10,781	1,322,054	2,006,127	0.93%
1991	1993	163,802,656	299,241	357,510	783,637	270,105	4,132	860,291	1,492,038	0.91%
1992	1994	172,087,494	284,957	387,692	2,407,526	1,582,480	12,533	4,162,803	6,145,508	3.57%
1993	1995	162,406,765	316,171	319,159	939,605	824,020	7,931	1,163,166	2,314,276	1.42%
1994	1996	168,864,536	281,270	208,399	4,114,858	2,269,492	0	2,658,625	5,136,516	3.04%
1995	1997	169,508,993 [g]	295,802	349,362	2,266,121	2,152,705	0	3,069,701	5,571,768	3.29%
1996	1998	106,440,456 [h]	0	264,143	2,437,615	2,427,120		4,817,354	7,508,617	7.00%

[a] Data for BY 1985 and 1987 - 1995 provided by the ADF&G CWT project. PWSAC provided data for all other years. Starting in 1994, broodstock number includes fish processed for roe as reported by PWSAC.

[b] Data for all years provided by the ADF&G CWT project. Sales numbers include inter-hatchery contributions.

[c] Data for all years from ADF&G fishticket information.

[d] Includes fish donated and/or discarded in 1991. Data provided by the ADF&G CWT project.

[e] Contribution estimate from Geiger, 1990.

[f] Includes 163,583 fish made into surimi on a trial basis.

[g] All BY 1995 fry released bore thermal otolith marks.

[h] All BY 1996 fry released bore thermal otolith marks.

Appendix F.11. Historical catch contributions, coded wire tag (CWT) releases, and total returns of pink salmon to Solomon Gulch Hatchery, Prince William Sound, 1977 - 1998.

Brood Year	Return Year	Fry Release [a]	CWT Applied to Fry Release [b]	Broodstock [a]	Total Cost Recovery Harvest [c]	Hatchery Contribution to CR Harvest [b]	Hatchery Contribution to Other Harvest [d]	Hatchery Contribution to the CPF [a]	Total Hatchery Return	Estimated Marine Survival
1975	1977	0	0	0	0	0	0	0	0	0.00%
1976	1978	0	0	0	0	0	0	0	0	0.00%
1977	1979	0	0	0	0	0	0	0	0	0.00%
1978	1980	0	0	0	0	0	0	0	0	0.00%
1979	1981	0	0	0	0	0	0	0	0	0.00%
1980	1982	0	0	0	0	0	0	0	0	0.00%
1981	1983	7,900,000	0	12,484	78,961	78,961	0	no estimate	91,445	1.16%
1982	1984	5,600,000	0	77,828	28,247	28,247	0	25,000	131,075	2.34%
1983	1985	8,390,000	0	196,827	223,819	223,819	0	64,961	485,607	5.79%
1984	1986	51,275,265	0	117,665	91,392	91,392	0	1,008,193	1,217,250	2.37%
1985	1987	54,630,942	0	183,411	1,106,910	1,106,910	0	4,000,000 [e]	5,290,321	9.68%
1986	1988	59,830,980	178,461	192,164	542,040	542,040	0	300,000 [e]	1,034,204	1.73%
1987	1989	130,830,267	277,365	214,891	720,048	670,952	0	2,412,008	3,297,851	2.52%
1988	1990	128,518,252	312,196	154,612	2,146,469	1,911,667	0	6,857,288	8,923,567	6.94%
1989	1991	122,255,027	210,854	275,066	3,220,450	2,900,513	0	2,515,597	5,691,176	4.66%
1990	1992	131,296,671	250,051	238,503	1,344,664	1,240,324	4,953	380,251	1,864,031	1.42%
1991	1993	86,900,725	160,733	168,749	1,326,463	942,993	0	572	1,112,314	1.28%
1992	1994	141,865,235	235,764	423,895	3,181,846	2,657,755	6,217	9,647,154	12,735,021	8.98%
1993	1995	149,473,648	305,678	440,134	2,535,578	2,528,659	4,255	3,792,309	6,765,357	4.53%
1994	1996	205,371,130	337,834	144,334	2,365,031	2,016,927	0	4,828,950	6,990,211	3.40%
1995	1997	233,088,327 [f]	376,203	256,789	2,431,007	2,429,645	0	4,325,620	7,012,054	3.01%
1996	1998	188,862,094 [g]	0	334,551	3,428,348	3,076,945		1,226,679	4,638,175	2.50%

[a] Data for BY 1985 and 1987 - 1995 provided by the ADF&G CWT project. VFDA provided data for all other years. Starting in 1994, broodstock number includes fish processed for roe as reported by VFDA.

[b] Data for all years provided by the ADF&G CWT project. Sales numbers include inter-hatchery contributions.

[c] Data for all years from ADF&G fishticket information.

[d] Includes fish donated and/or discarded in 1991. Data provided by the ADF&G CWT project.

[e] Contribution estimate from Geiger, 1990.

[f] All BY 1995 fry released bore thermal otolith marks.

[g] All BY 1996 fry released bore thermal otolith marks.

Appendix F.12. Historical catch contributions, thermal marked otolith releases, and total returns of pink salmon to Prince William Sound hatcheries, 1995 - 1998.

Solomon Gulch

Brood Year	Return Year	Fry Release	Thermal Mark Applied to Fry Release	Broodstock	Total Cost Recovery Harvest	Hatchery Contribution to CR Harvest	Hatchery Contribution to Other Harvest	Hatchery Contribution to the CPF	Total Hatchery Return	Estimated Marine Survival
1995	1997	233,088,327	233,088,327	356,271	2,431,007	2,428,010	0	4,005,264	6,789,545	2.9%
1996	1998	188,862,094	188,862,094	334,551	3,428,348	3,076,945	0	1,226,679	4,638,175	2.5%
1997	1999	195,162,163	195,162,163							

Armin F. Koernig

Brood Year	Return Year	Fry Release	Thermal Mark Applied to Fry Release	Broodstock	Total Cost Recovery Harvest	Hatchery Contribution to CR Harvest	Hatchery Contribution to Other Harvest	Hatchery Contribution to the CPF	Total Hatchery Return	Estimated Marine Survival
1995	1997	108,636,976	108,636,976	0	3,206,683	3,139,053	0	3,815,265	6,954,318	6.4%
1996	1998	52,384,532	52,384,532	343,978	1,634,956	1,582,038	0	5,037,454	6,963,470	13.3%
1997	1999	148,323,538	148,323,538							

Wally Noerenberg

Brood Year	Return Year	Fry Release	Thermal Mark Applied to Fry Release	Broodstock	Total Cost Recovery Harvest	Hatchery Contribution to CR Harvest	Hatchery Contribution to Other Harvest	Hatchery Contribution to the CPF	Total Hatchery Return	Estimated Marine Survival
1995	1997	176,431,919	176,431,919	409,455	2,280,868	2,321,255	0	3,464,254	6,194,964	3.5%
1996	1998	106,440,456	106,440,456	264,143	2,437,615	2,427,120	0	4,817,354	7,508,617	7.0%
1997	1999	103,675,208	103,675,208							

Cannery Creek

Brood Year	Return Year	Fry Release	Thermal Mark Applied to Fry Release	Broodstock	Total Cost Recovery Harvest	Hatchery Contribution to CR Harvest	Hatchery Contribution to Other Harvest	Hatchery Contribution to the CPF	Total Hatchery Return	Estimated Marine Survival
1995	1997	140,441,131	140,441,131	319,329	1,897,259	1,852,317	0	3,608,272	5,779,918	4.1%
1996	1998	136,838,852	136,838,852	304,945	1,324,307	1,305,144	0	4,869,014	6,479,103	4.7%
1997	1999	137,571,564	137,571,564							

Appendix F.13. Estimated total hatchery and wild stock production of pink salmon, Prince William Sound, 1977 - 1998.

	Total Return by Hatchery[a]								
Year[b]	Solomon Gulch (VFDA)	Armin F Koernig (PWSAC)	Wally Noerenberg (PWSAC)	Main Bay (ADF&G - PWSAC)	Cannery Cr. (ADF&G - PWSAC)	Total Hatchery Production	Total Wild Stock Component[c]	Revised Total Hatchery Production[d]	Revised Total Wild Stock Component[d]
1977		27,857				27,857	5,816,401		
1978		154,620				154,620	3,925,083		
1979		552,955				552,955	17,335,503		
1980		1,493,489			90,348	1,583,837	14,013,916		
1981		2,264,854			141,440	2,406,294	19,568,866		
1982		5,134,363		35,000	764,214	5,933,577	16,794,317		
1983	91,445	3,722,502		496,850	469,441	4,780,238	11,567,348		
1984	131,075	2,800,000		1,200,000	1,139,000	5,270,075	21,201,513		
1985	485,607	5,030,616		383,000	2,594,000	8,493,223	19,938,105		
1986	1,217,250	4,964,000		232,000	853,000	7,266,250	5,563,957		
1987	5,290,321	7,613,161	3,011,955	328,000	2,131,726	18,375,163	13,066,944		
1988	1,034,204	6,076,493	3,866,618	100,000	227,688	11,305,003	1,766,936		
1989	3,297,851	2,628,627	5,718,794	0	5,540,665	17,185,937	6,610,342	20,100,598	3,695,681
1990	8,923,567	6,809,090	13,553,591	d	2,534,297	31,820,545	14,418,696	34,445,983	11,793,258
1991	5,691,176	5,117,569	11,690,234	0	8,501,296	31,000,275	9,295,456	34,326,949	5,940,967
1992	1,864,031	2,391,140	2,006,127	0	1,519,716	7,781,014	2,203,701	9,085,482	899,233
1993	1,112,314	1,528,425	1,492,039	0	712,223	4,845,001	2,875,916	6,877,320	836,282
1994	12,735,021	1,744,142	6,145,508	0	9,640,886	30,265,557	9,501,683	36,702,094	3,065,146
1995	6,765,357	856,048	2,314,276	0	5,072,900	15,008,581	3,401,469	15,523,888	2,886,162
1996	6,990,211	1,766,881	5,136,516	0	6,516,672	20,410,280	8,374,327	25,643,041	3,141,566
1997	7,012,054	6,605,685	5,571,768	0	4,513,121	23,702,628	4,596,623	26,004,197	2,295,054
1998[e]	4,638,175	6,969,470	7,508,617	0	6,479,103	25,595,365	5,254,369		

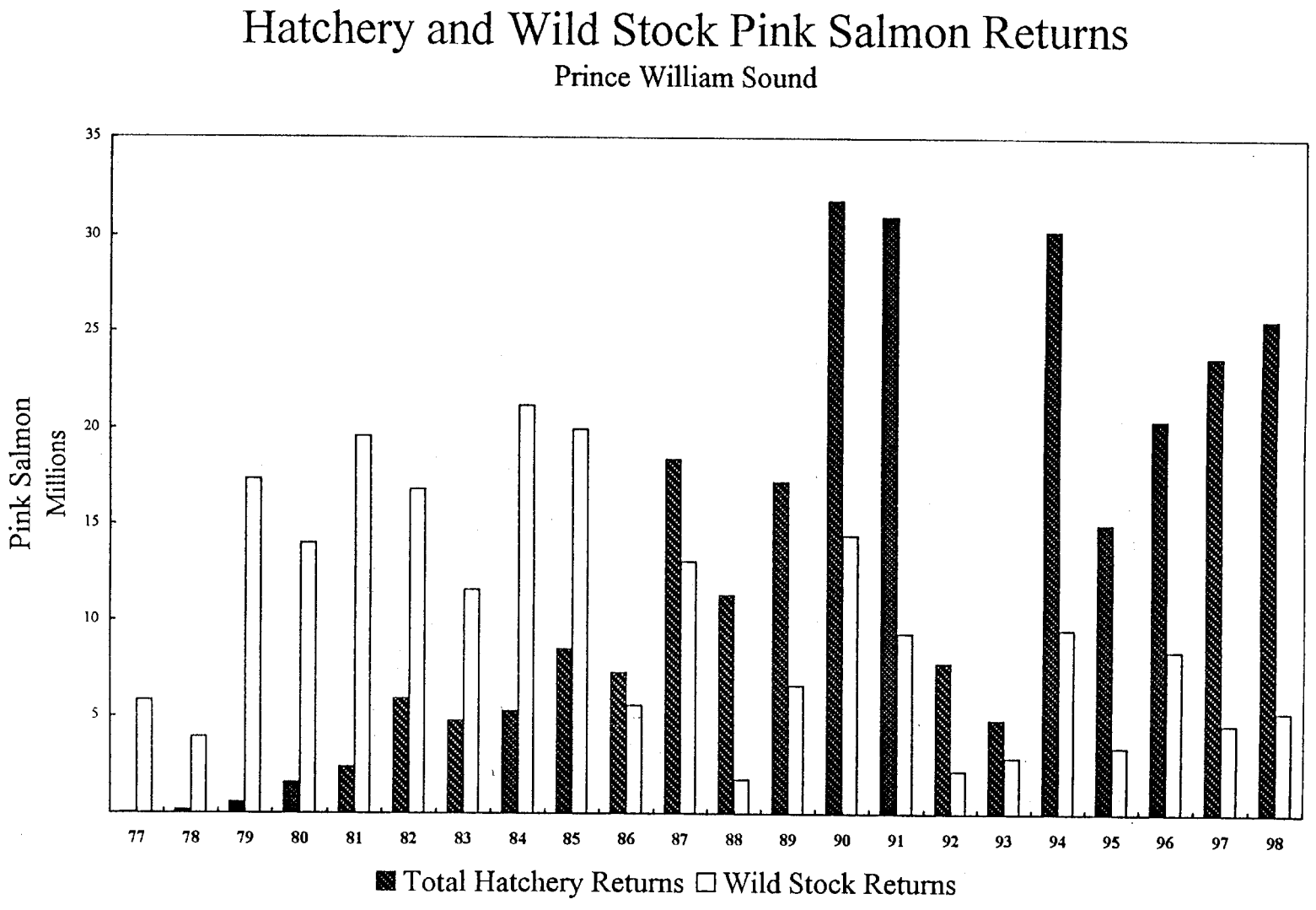
[a] Prior to 1987, there was no definitive or statistically valid method of separating hatchery and wild stock composition in the commercial catch. The above estimates are based on presumed wild stock exploitation rates which in turn are determined by the wild stock escapement estimate. The wild stock escapement index is only a minimum estimate. The true wild stock escapement is not known. Consequently estimates prior to 1987 may exaggerate hatchery contributions somewhat. In 1987 returning adults from the Cannery Creek, Armin F. Koernig and Esther hatcheries were marked with half length coded wire tags (CWT). In a jointly funded program conducted by ADF&G and PWSAC, these marked fish were recovered and analyzed to estimate hatchery contributions to the fishery (Geiger,1990).

[b] Hatchery totals include cost recovery harvests, broodstock collection and escapement, and estimated common property fishery interception.

[c] Total wild stock return represents the estimated wild stock catch plus the aerial escapement index. 1998 wild stock component = 3,834,264 catch plus 1,420,105 escapement index.

[d] Revised contribution based on individual hatchery CWT adjustment factors.

[e] Hatchery totals from otoliths.



Appendix F.14. Estimated total pink salmon returns to hatcheries and wild stock systems, Prince William Sound, 1977 - 1998.

Appendix F.15. Historical catch contributions, coded wire tag (CWT) releases, and total returns of pink salmon to all hatcheries combined, Prince William Sound, 1977 - 1998.

Brood Year	Return Year	Fry Release [a]	CWT Applied to Fry Release [b]	Broodstock [a]	Total Cost Recovery Harvest [c]	Hatchery Contribution to CR Harvest [b]	Hatchery Contribution to Other Harvest [d]	Hatchery Contribution to the CPF [a]	Total Hatchery Return	Estimated Marine Survival	Revised Total Hatchery Return [e]	Revised Estimated Marine Survival [e]
1975	1977	1,000,000	0	16,112	15,545	7,745	0	4,000	27,857	2.79%		
1976	1978	11,010,577	0	40,432	114,188	114,188	0	0	154,620	1.40%		
1977	1979	16,950,784	0	54,207	223,748	223,748	0	275,000	552,955	3.26%		
1978	1980	25,600,739	0	145,061	346,728	346,728	0	1,092,048	1,583,837	6.19%		
1979	1981	24,194,000	0	268,501	707,037	707,037	0	1,430,747	2,406,285	9.95%		
1980	1982	91,076,000	0	239,945	1,354,732	1,354,732	0	4,303,900	5,898,577	6.48%		
1981	1983	91,951,000	0	258,062	686,963	686,963	0	3,338,366	4,283,391	4.66%		
1982	1984	115,107,533	0	341,259	415,393	415,393	0	3,313,423	4,070,075	3.54%		
1983	1985	116,336,000	0	640,340	1,209,960	1,209,960	0	6,259,923	8,110,223	6.97%		
1984	1986	191,306,265	0	466,471	905,464	905,464	0	5,662,315	7,034,250	3.68%		
1985	1987	231,538,713	646,561	1,158,908	2,691,190	2,691,190	0	14,197,065	18,047,163	7.79%		
1986	1988	218,830,647	568,688	824,302	1,632,701	1,632,701	0	8,748,000	11,205,003	5.12%		
1987	1989	532,045,966	939,498	856,927	7,853,419	5,767,911	0	10,561,099	17,185,937	3.23%	20,100,598	3.78%
1988	1990	507,688,297	1,074,099	749,910	8,732,658	6,691,160	0	24,379,475	31,820,545	6.27%	34,445,983	6.78%
1989	1991	615,139,948	1,128,899	1,324,255	6,119,141	5,201,860	3,573,805	20,900,355	31,000,275	5.04%	34,326,949	5.58%
1990	1992	603,519,636	1,091,403	789,880	3,049,394	2,626,248	30,290	4,345,805	7,792,223	1.29%	9,085,482	1.51%
1991	1993	495,700,200	823,128	921,073	2,639,982	1,544,727	14,648	2,392,162	4,872,610	0.98%	6,877,320	1.39%
1992	1994	567,320,470	950,976	1,422,306	10,308,169	7,613,582	56,396	21,173,273	30,265,557	5.33%	36,702,094	6.47%
1993	1995	488,575,978	941,811	1,154,635	5,057,418	4,703,457	78,020	9,072,469	15,008,581	3.07%	15,523,888	3.18%
1994	1996	613,158,229	1,017,782	544,531	8,285,166	5,363,551	0	14,502,198	20,410,280	3.33%	25,643,041	4.18%
1995	1997	651,675,427 [f]	1,079,354	841,448	9,776,254	8,907,382	0	13,953,798	23,702,628	3.64%	26,004,197	3.99%
1996	1998	484,525,934 [g]	0	1,247,617	8,825,226	8,391,247	0	15,950,501	25,589,365	5.28%		

[a] Data for BY 1985 and 1987 - 1995 provided by the ADF&G CWT project. PWSAC provided data for all other years. Starting in 1994, broodstock number includes fish processed for roe as reported by PWSAC.

[b] Data for all years provided by the ADF&G CWT project. Sales numbers include inter-hatchery contributions.

[c] Data for all years from ADF&G fishticket information.

[d] Includes donated and/or discarded fish in 1991. Data provided by the ADF&G CWT project.

[e] Revised contirbution based on individual hatchery CWT adjustment factors.

[f] All BY 1995 fry released bore thermal otolith marks.

[g] All BY 1996 fry released bore thermal otolith marks.

APPENDIX G: SUBSISTENCE AND PERSONAL USE FISHERIES

Appendix G.1. Subsistence salmon harvest by species and gear type, Prince William Sound and Upper Copper River, 1998.

Area	Permits Issued	Permits Fished	Gear Type	Chinook	Sockeye	Coho	Pink	Chum	Other[a]	Total
Prince William Sound	4	0	Drift Gillnet	0	0	0	0	0	0	0
	0	0	Purse Seine	0	0	0	0	0	0	0
	0	0	Set Net	0	0	0	0	0	0	0
P.W.S. TOTAL	4	0		0	0	0	0	0	0	0
Copper River Flats	245	144	Drift Gillnet	295	850	680	0	1	6	1,832
Upper Copper River	272		Dip Net	232	7,640	96	0	0	5	7,973
	738		Fish Wheel	1,520	53,723	424	0	0	102	55,769
Eastern	11	2	Drift Gillnet and Dip Net	0	2	71	4	28	0	105
Southwestern	4	3	Drift Gillnet and Dip Net	13	114	20	65	119	0	331
Batzulnetas	1	1	Fish Wheel	0	382	0	0	0	0	382
Total	1,275	150		2,060	62,711	1,291	69	148	113	66,392

[a]Includes cutthroat, steelhead and Dolly Varden as well as misc. salmon species.

Appendix G.2. Salmon catch and effort in the Prince William Sound subsistence fishery, 1960 - 1998.

Year	Permits		Catch[a]						
	Issued	Returned	Chinook	Sockeye	Coho	Pink	Chum	Unknown	Total
1960	50		1	139	505	1,292	75	150	2,162
1961	12		3	41	123	732	3		902
1962	9				119	214	142		475
1963	9				406	298	24		728
1964	15			11		900			911
1965	22	16				179	25		204
1966	3	3		3	19	20	50		92
1967	4	3			4	4			8
1968	4	3			20	156		22	198
1969	7	3			16				16
1970	1	1							0
1971	3	2				46			46
1972	0								0
1973	19	16			289				289
1974	3	1							0
1975	2	0							0
1976	0								0
1977	4	4							0
1978	3	2							0
1979	15	2							0
1980	26	15		7	6				13
1981	12	8		3	29		2		34
1982	35	27		84	4	31	24		143
1983	26	21		22	36	9	79		146
1984	8	8		10		11	2		23
1985	22	16	1	27	16	14	26		84
1986	25	14		5	15				20
1987	18	17	5	31	6		16		58
1988	7	7	2	51	7	10	9		79
1989	11	7	0	0	0	0	3	0	3
1990	8	8	0	0	7	4	0	0	11
1991	9	5	0	2	0	0	0	0	2
1992	10	6	0	20	0	0	0	0	20
1993	6	6	1	104	10	0	0	0	115
1994	5	4	0	0	0	0	0	0	0
1995	4	2	0	0	0	0	0	0	0
1996	10	2	0	0	0	0	0	0	3
1997	4	3	0	3	0	0	0	0	3
1998	4	3	0	0	0	0	0	0	0

[a] Includes catches from Prince William Sound, exclusive of the Copper River Flats.

Appendix G.3. Salmon catch and effort in the Copper River District subsistence gillnet fishery, 1965-1998.

Year	Total Issued	Permits Issued			Catch			
		Fished[a]	Not Fished	Not returned	Chinook	Sockeye	Coho	Total
1965	31	15	5	11	12	459	85	556
1966	45	21	10	14	47	175		222
1967	61	37	19	5	83	153		236
1968	17	7	8	2	11	36		47
1969	49	20	13	16	16	63	85	164
1970	32	24	3	5	66	179		245
1971	29	17	9	3	10	32	4	46
1972	104	75	5	24	149	569	53	771
1973	94	89	N/A	5	153	326	180	659
1974	9	3	2	4	5	4	2	11
1975	2	2	N/A	0	0	5	0	5
1976	27	14	N/A	13	1	10	0	11
1977	23	22	N/A	1	10	71	0	81
1978	34	9	19	6	37	18	12	67
1979	49	21	20	8	45	26	17	88
1980	39	18	17	4	19	27	17	63
1981	72	30	21	21	48	145	104	297
1982	108	48	42	18	60	634	106	802[b]
1983	87	31	42	14	79	107	57	254[b]
1984	118	57	47	14	68	324	135	549[b]
1985	94	67	27	0	88	261	83	433[b]
1986	88	57	28	3	86	348	47	481[b]
1987	95	39	50	6	49	359	14	510[b]
1988	114	57	40	17	59	226	42	440[b]
1989	75	32	32	11	56	339	51	454[b]
1990	88	38	38	12	60	469	82	611[b]
1991	129	72	43	14	136	830	38	1,009[b]
1992	126	67	46	13	142	785	42	999[b]
1993	111	50	43	18	120	428	29	601[b]
1994	101	60	37	4	164	474	67	708[b]
1995	126	72	40	14	154	692	31	880[b]
1996	176	101	56	19	276	969	47	1,292
1997	269	165	78	26	201	1,033	1,777	3,022[b]
1998	245	144	86	15	295	850	680	1,832[b]

[a]Includes all permit holders, successful or unsuccessful.
[b]Total also includes pink, chum and dolly varden.

Appendix G.4. Salmon catch and effort in the Eastern District (Tatitlek) and Southwestern District (Chenega) subsistence fishery, Prince William Sound, 1988 - 1998.

Year	Permits		Catch						
	Issued	Fished	Chinook	Sockeye	Coho	Pink	Chum	Unknown	Total
				EASTERN					
1988	17	9	2	210	249	143	297	0	901
1989	14	7	1	107	653	28	43	0	832
1990	13	8	0	5	241	10	4	0	260
1991	19	7	0	107	984	320	28	0	1,439
1992	15	5	2	441	369	30	49	0	891
1993	18	7	2	512	305	144	74	180	1,217
1994	14	4	0	50	143	50	70	0	313
1995 [a]	15								
1996	6	1	0	0	38	0	0	0	38
1997	6	3	0	107	45	0	54	0	206
1998	11	2	0	2	71	4	28	0	105
				SOUTHWESTERN					
1988	10	5	1	50	8	251	294	0	604
1989	8	7	0	322	0	554	180	0	1,056
1990	7	2	1	36	5	20	2	0	64
1991	12	4	3	345	42	195	53	0	638
1992	14	8	1	526	23	313	99	0	962
1993	22	17	2	835	50	232	124	0	1,243
1994	16	8	5	192	77	402	161	0	837
1995	10	5	2	152	67	67	41	0	329
1996	7	3	0	107	7	105	46	0	265
1997	5	4	44	193	30	110	272	0	649
1998	4	3	13	114	20	65	119	0	331

[a] No permits were returned.

Appendix G.5. Salmon catch by species and numbers of permits by gear type for the Upper Copper River subsistence and personal use fisheries, 1981 - 1998.

	Permits Issued			Reported Catch[a]			Reported Catch by Species			Total Salmon Catch	
Year	Dip Net	Fish Wheel	Total	Dip Net	Fish Wheel	Total	Chinook	Sockeye	Coho	Reported	Estimated
1981	3,555	523	4,078	28,872	26,924	55,796	1,913	53,008	849	55,770	68,654
1982	5,475	615	6,090	62,614	38,120	100,734	2,532	96,799	1,246	100,577	109,557
1983	6,911	630	7,541	72,257	35,971	108,228	5,421	100,995	1,690	108,106	118,599
1984 s	104	458	562	1,288	20,374	21,662	415	20,999	237	21,651	28,617
p	5,311	17	5,328	46,018	223	46,241	1,592	44,079	552	46,223	50,714
s&p	5,415	475	5,890	47,306	20,597	67,903	2,007	65,078	789	67,874	79,331
1985	4,153	533	5,686	29,856	22,877	52,733	1,673	50,488	544	52,705	64,164
1986 s[b]	39	366	405	645	25,136	25,781	622	24,890	264	25,776	28,417
p	3,966	65	4,031	41,641	1,054	42,695	2,294	39,794	521	42,609	44,047
s&p	4,005	431	4,436	42,286	26,190	68,476	2,916	64,684	785	68,385	72,464
1987 s[b]	59	372	431	1,114	24,157	25,271	531	21,615	105	22,251	34,080
p	4,186	73	4,259	42,842	567	43,409	2,749	40,285	393	43,427	46,908
s&p	4,245	445	4,690	43,956	24,724	68,680	3,280	61,900	498	65,678	80,988
1988 s	70	339	409	1,860	18,955	20,815	672	19,761	245	20,678	30,313
p	4,205	46	4,251	40,492	1,238	41,730	2,723	38,533	450	41,706	45,855
s&p	4,275	385	4,660	42,352	20,193	62,545	3,395	58,294	695	62,384	76,168
1989 s	78	308	386	2,235	25,377	27,612	744	26,716	65	27,525	29,225
p	4,447	137	4,584	53,321	3,223	56,544	2,160	53,505	825	56,490	58,941
s&p	4,525	445	4,970	55,556	28,600	84,156	2,904	80,221	890	84,015	88,166
1990 s	95	311	406	2,703	27,942	30,645	604	29,947	87	30,638	32,283
p	5,631	58	5,689	67,241	747	67,988	2,594	63,793	1,446	67,833	70,812
s&p	5,726	369	6,095	69,944	28,689	98,633	3,198	93,740	1,533	98,471	103,095
1991 s	293	418	711	6,127	31,634	37,761	1,217	36,289	213	37,719	40,070
p	6,222	NA	6,222	82,767	NA	82,767	3,947	75,499	3,264	82,710	85,059
s&p	6,515	418	6,933	88,894	31,634	120,528	5,164	111,788	3,477	120,429	125,129
1992 s	151	504	655	4,250	40,198	44,448	1,368	42,689	330	44,387	46,395
p	6,387	NA	6,387	89,840	NA	89,840	3,337	84,981	1,487	89,805	91,683
s&p	6,538	504	7,042	94,090	40,198	134,288	4,705	127,670	1,817	134,192	138,078
1993 s	14	759	773	252	49,792	50,044	1,308	48,582	70	49,960	54,370
p	7,914	NA	7,914	93,747	NA	93,747	2,729	89,629	1,358	93,716	97,767
s&p	7,928	759	8,687	93,999	49,792	143,791	4,037	138,211	1,428	143,676	152,137
1994 s	267	703	970	6,154	58,504	64,658	1,827	62,717	55	64,658	69,662
p	7,061	NA	7,061	95,903	NA	95,903	3,596	90,332	1,903	95,831	99,822
s&p	7,328	703	8,031	102,057	58,504	160,561	5,423	153,049	1,958	160,430	169,484
1995 s	191	665	856	3,626	47,481	51,107	1,740	48,415	821	50,976	55,329
p	6,760	NA	6,760	85,997	NA	85,997	4,568	76,670	4,726	85,964	88,617
s&p	6,951	667	7,616	89,623	47,481	137,104	6,308	125,085	5,547	136,940	143,946
1996 s	219	631	850	5,757	45,086	50,843	1,388	48,747	522	50,657	54,091
p	7,198	NA	7,198	99,511	NA	99,511	3,493	92,590	3,295	99,378	101,972
s&p	7,417	631	8,048	105,268	45,086	150,354	4,881	141,337	3,817	150,035	156,063
1997 s	286	847	1,133	7,964	72,166	80,130	2,408	77,388	177	79,973	86,270
p	9,086	NA	9,086	151,387	NA	151,387	5,336	145,881	155	151,372	154,467
s&p	9,372	847	10,219	159,351	72,166	231,517	7,744	223,269	332	231,345	240,737
1998 s	272	738	1,010	7,973	55,769	63,742	1,752	61,363	520	63,635	67,065
p	10,006	NA	10,006	141,573	NA	141,573	6,610	132,929	1,999	141,538	145,316
s&p	10,278	738	11,016	149,546	55,769	205,315	8,362	194,292	2,519	205,173	212,381

[a] Includes all reported species

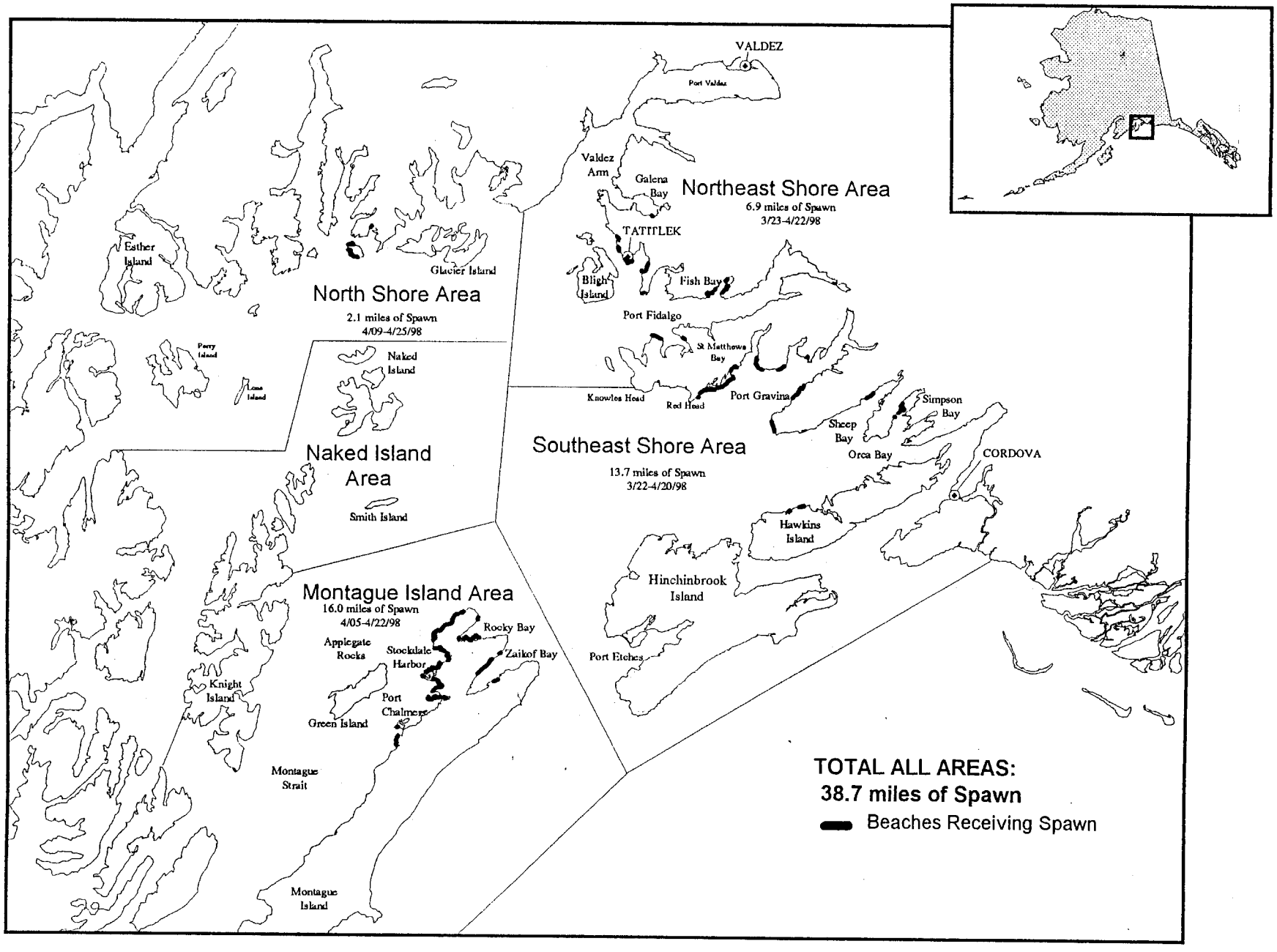
[b] Subsistence dip net catch estimated

s = subsistence
p = personal use
s&p = total catch

Appendix G.6. Personal use salmon harvest by district, species and gear type, Prince William Sound and Copper River, 1998.

District	Permits	Landings	Gear Type	Chinook	Sockeye	Coho	Pink	Chum
Bering River	5	5	Drift Gillnet	7				
Copper River	309	767	Drift Gillnet	1,411	1,435	14	4	2
Coghill	11	13	Drift Gillnet	13	9			
Southwestern	2	2	Purse Seine		19	18		
Unakwik	2	2	Drift Gillnet	5	19			
Total	329	789		1,436	1,482	32	4	2

APPENDIX H: HERRING FISHERIES



Appendix H.1. Location of spawning herring and miles of spawn observed during aerial surveys in Prince William Sound, Alaska, 1998.

Appendix H.2. Prince William Sound commercial Pacific herring harvest summary with fishing location and effort by gear type, 1998.

Fishery	Fishing Information				Harvest and Use (tons)	
	Area	Date	Duration	Effort	Spawn on Kelp	Pacific Herring
Sac Roe Purse Seine	Montague Is.	6 Apr	30 min	46		3,329.7
	Total					3,329.7
Sac Roe Gillnet	Montague Is.	11 Apr	3 h	0		0.0
	Montague Is.	12 Apr	3.5 h	20		415.1
	Total					415.1
Wild Spawn on Kelp [a]	Montague Is.	22 Apr	3 h	29	10.1	80.8
	Montague Is.	23 Apr	3 h	9	3.9	31.2
	Montague Is.	24 Apr	14 h	8	3.3	26.8
	Montague Is.	25 Apr	14 h	0	0.0	0.0
	Montague Is.	26 Apr	14 h	0	0.0	0.0
	Montague Is.	27 Apr	14 h	0	0.0	0.0
	Total				17.3	138.8 [b]
Pound Spawn on Kelp [c]	Montague Is.	4 Apr-31 Dec	[d]	8 [e]	3.2	25.9 [b]
	Eastern District	5 Apr-31 Dec [f]	[d]	4 [e]	1.5	12.2 [b]
	Northern District	9 Apr-31 Dec [g]	[d]	8 [e]	1.6	13.2 [b]
	Southeastern	13 Apr-31 Dec [h]	[d]	13 [i]	4.2	53.1 [j]
	Total				10.7	104.3
Food/Bait Fishery	Knowles Head [k]	31 Oct	-	1		14.6
	Montague Is.	2 Nov-4 Nov	49.2 h	10		875.8
	Montague Is.	6-Nov	12 h	8		112.8
	Total					1,003.3
Harvest and Use - Total					28.0	4,991.2

[a] The harvest of naturally occurring herring spawn on native kelp species in Prince William Sound.

[b] The biomass of herring subjected to removal of reproductive capacity of the population based on the assumptions that 10% of the biomass of pre-spawning herring consists of eggs and that 80% of the weight of harvested spawn on kelp consists of eggs.

[c] The harvest of herring spawn on kelp produced in net pens or pounds. Includes pounds fished in open configuration.

[d] Closed by regulation at the end of calendar year

[e] Open pound configuration

[f] Port Fidalgo opened to open pounds on 5 April and Port Gravina opened to open pounds on 11 April. Port Gravina opened to closed pounds on 4/12, but no harvest occurred for this gear configuration.

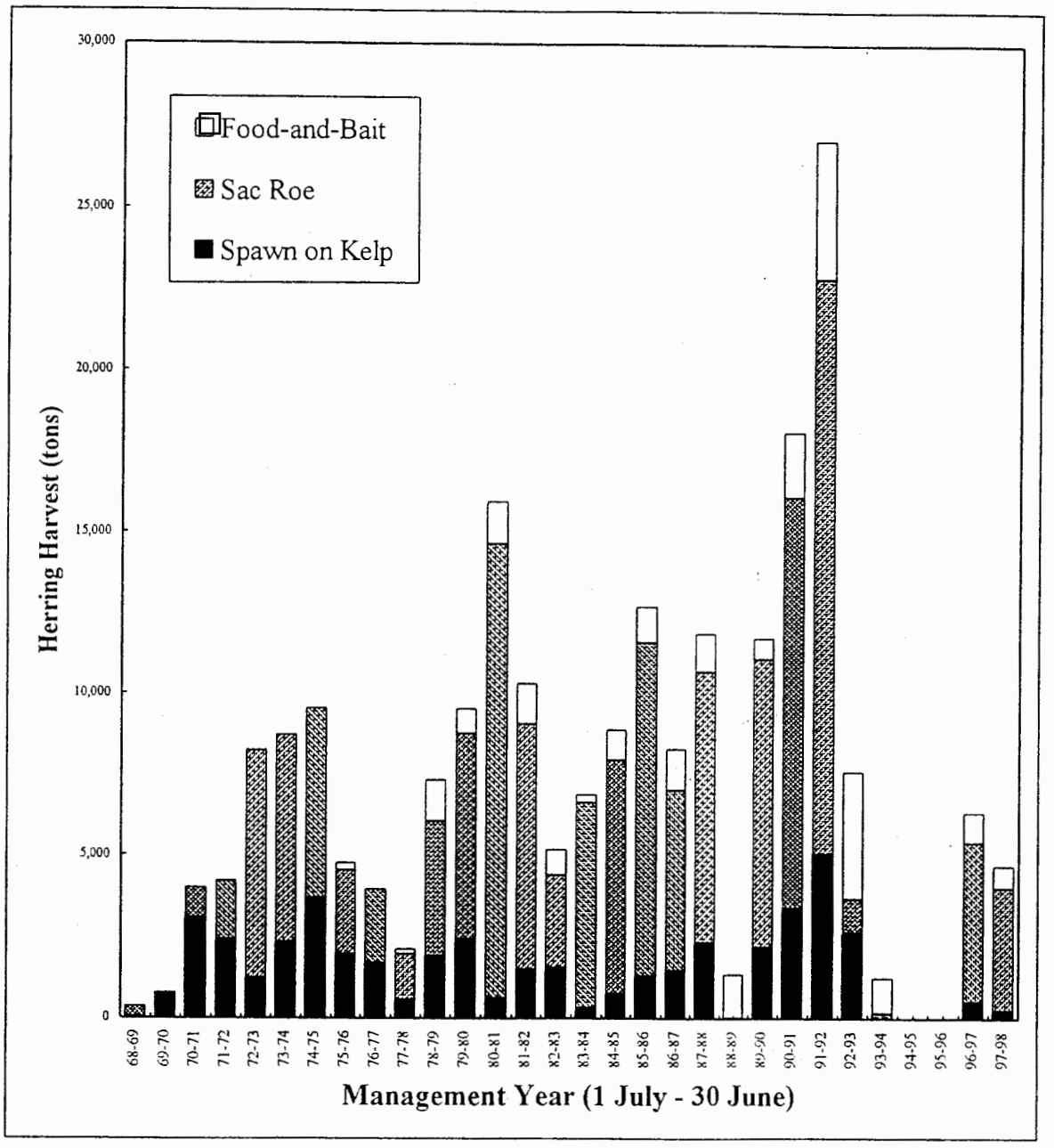
[g] Fairmont Bay opened to open pounds on 8 April and waters near Fairmont Island opened on 20 April.

[h] Southeastern District opened to open pounds on 13 April. Windy Bay opened to seining for closed pounds 16 April and was closed 18 Apr

[i] Closed pound configuration.

[j] The biomass of herring subjected to stress mortality and removal of reproductive capacity of the population based on the assumption that 12.5 tons of herring are used to produce one ton of spawn on kelp.

[k] Sale of ADF&G test fishing catch.



Appendix H.3. Prince William Sound commercial herring harvest by management year and fishery, 1968-1998.

Appendix H.4. Pacific herring sac roe seine and gillnet fishery effort, anticipated harvest, and actual harvest, Prince William Sound, 1969-1998

	Seine Fishery							Gillnet Fishery							Total
Calendar Year	Opening Dates	Hours	Effort (Boats)	Guideline Harvest [a]	Harvest (tons)	CPUE (tons/Boat Hr)	Estimated Roe %	Opening Dates	Hours	Effort (Boats)	Guideline Harvest [a]	Harvest (tons)	CPUE (tons/Boat Hr)	Estimated Roe %	Harvest (tons)
1969	3/01 - 6/30		5		325.4										325.4
1970	3/01 - 6/30														
1971	3/01 - 6/30		12		919.2										919.2
1972	3/01 - 6/30		18		1,777.2										1,777.2
1973	4/23 - 5/09		31		6,991.9										6,991.9
1974	4/10 - 4/17		72		6,371.0			4/10 - 4/17		3		3.8			6,374.8
1975	4/15 - 4/22	14.0	76		5,853.8	5.50			14.0						5,853.8
1976	5/08 & 6/01	13.0	66		2,584.2	3.01			13.0						2,584.2
1977	4/09 - 4/10	38.0	58		2,265.6	1.03		4/09 - 04/10	38.0	1		1.6	0.04		2,267.1
1978	4/17 - 4/21 [b]	106.0	75	5,000	1,329.5	0.17		4/17 - 04/21	106.0	38		61.7	0.02		1,391.2
1979	4/07 - 4/19	215.5	89	5,000	4,138.0	0.22		CLOSED [c]							4,138.0
1980	4/01 - 4/09	162.0	76	5,000	6,042.2	0.49		4/17 - 5/05		16		264.4			6,306.7
1981	4/01 - 4/09	60.0	106	5,000	13,768.2	2.16		4/16 - 4/18	53.0	18		234.5	0.25		14,002.8
1982	4/23	2.0	95	5,000	7,148.3	37.62	10-14%	4/24 - 4/26	54.0	18		393.9	0.41	12-15%	7,542.2
1983	4/13	1.0	103 [d]	5,000	2,728.5	26.49	11.0%	4/21 - 4/22	24.0	22		105.4	0.20	11.0%	2,833.9
1984	4/14	3.0	105 [e]	5,000	5,946.1	18.88	10-11%	4/18 - 4/22	59.0	23	250	342.7	0.25	8-14%	6,288.8
1985	4/28 - 4/29	4.0	103 [f]	5,000	6,764.1	16.42	10-12%	4/29 - 5/01	34.0	21	250	413.3	0.58	10-12%	7,177.4
1986	4/17	3.0	106	5-7,000	9,828.1	30.91	11.0%	4/24 - 4/28	90.0	24	3-400	448.6	0.21	11.4%	10,276.7
1987	4/08 - 4/09	1.5	96	3-5,000	4,982.2	34.60	10.0%	4/10 - 4/11	24.0	24	2-300	533.3	0.93	9.5%	5,515.5
1988	4/21 - 4/22	2.0	105	4-5,000	7,977.3	37.99	10.5%	4/23	5.5	24	275	353.0	2.67	10.0%	8,330.3
1989	Season Closed [g]			6,400							375				0.0
1990	4/12	0.3	96	6,038	8,362.1	290.35	10.0%	4/13	4.0	24	353	505.4	5.26	10.6%	8,867.5
1991	4/09, 4/10, & 4/19	1.3	104	11,233	11,923.0 [h]	85.32	10.5%	4/18	10.5	24	657	742.0	2.94	11.06%	12,665.1
1992	4/13, 4/17, & 4/21	2.0	104	14,100	16,784.2 [i]	80.69	10.0%	4/23 - 4/24	11.0	24	825	940.6	3.56	10.8%	17,724.8
1993	No Harvest			15,586				4/15, 4/17-4/19	36.0	24	912	1,029.9	1.19	11.01%	1,029.9
1994	Season Closed [j]			0	151.0 [k]						0				151.0
1995	Season Closed [j]			0							0				0.0
1996	Season Closed [j]			0							0				0.0
1997	4/13,4/15	1.8	71	2,965	4,703.5	36.80	9.75%	4/09	2.5	22	175	175.7	3.19	8.00%	4,879.2
1998	4/06	0.5	46	3,367	3,329.7	144.77	9.6%	4/11, 4/12	6.5	20	197	415.1	3.19	11.0%	3,744.8

[a] Guideline harvest based on pre-season harvest projection beginning in 1986.

[b] An additional opening on 6/14 for 6 hours resulted in no harvest.

[c] Gillnet fishery closed by Board of Fisheries action.

[d] Of 103 boats participating, 72 actually made deliveries.

[e] Of 105 boats participating, 101 actually made deliveries.

[f] Of 103 boats participating, 62 made deliveries at Montague Island and 90 made deliveries in the north-shore area.

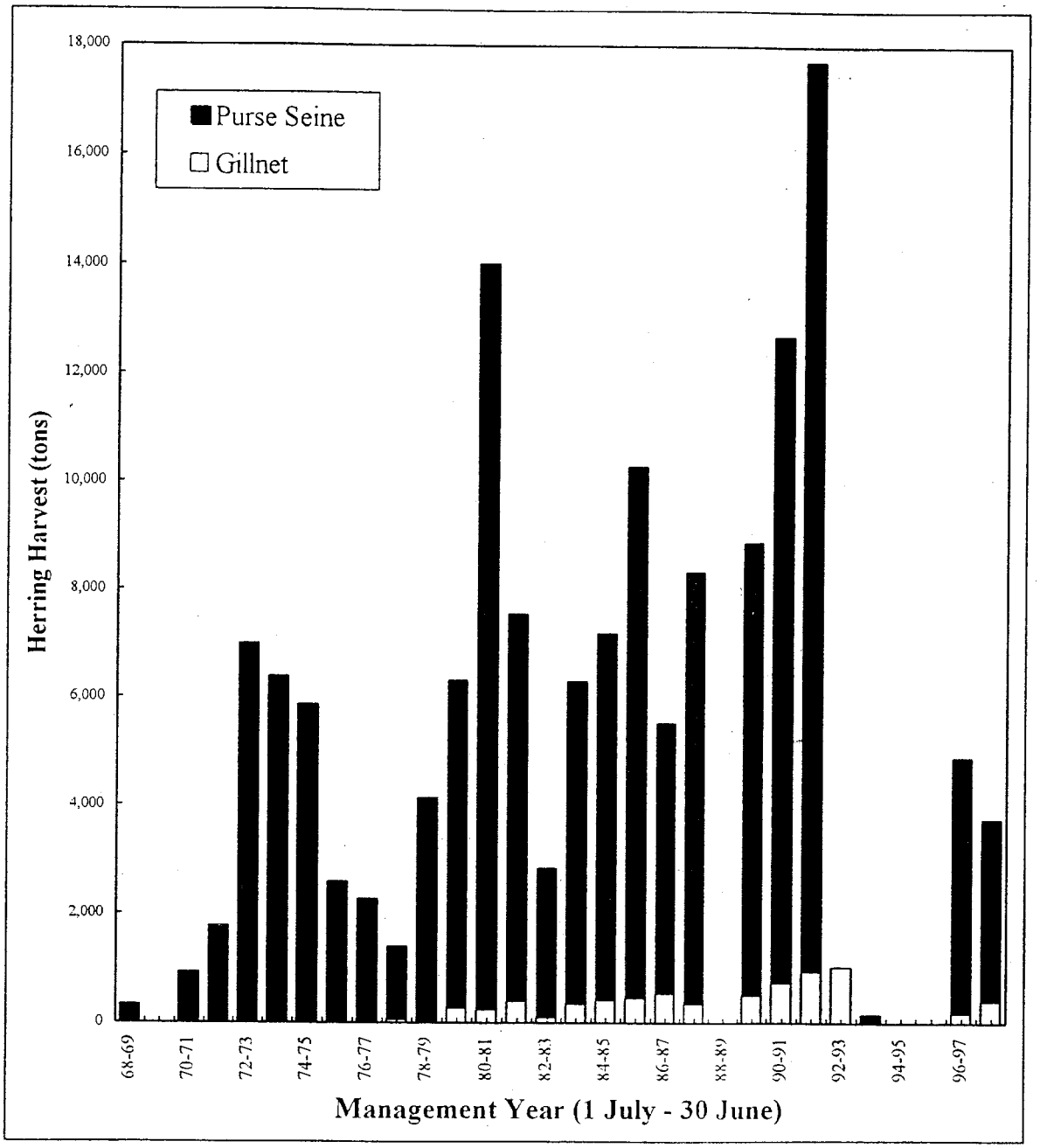
[g] All Pacific herring commercial sac roe and spawn-on-kelp fisheries in Prince William Sound were closed during the spring of 1989 due to the potential for contamination of catches from the T/V Exxon Valdez oil spill.

[h] Total for 1991 includes a 92.2 ton test fishing set made by ADF&G for aerial survey calibration.

[i] Total for 1992 includes a 192.5 ton test fishing catch made by ADF&G for aerial survey calibration.

[j] Season closed due to low herring abundance.

[k] Harvest for 1994 consisted of a single test fishing catch made by ADF&G for aerial survey calibration.



Appendix H.5. Prince William Sound commercial herring sac roe purse seine and gillnet harvest by management year, 1968-1998.

Appendix H.6. Pacific herring spawn-on-kelp harvests from natural spawning, Prince William Sound, 1969 - 1998.

Calendar Year	Fishery Dates	Hours	Effort (Divers)	Guideline Harvest (tons)	Harvest by Kelp Species and Grounds Price ($/lb)								Spawn-on-Kelp Harvest		Herring Utilized [a] (tons)
					Ribbon		Sieve		Fucus		Other				
					Percent	Price	Percent	Price	Percent	Price	Percent	Price	(lb)	(tons)	
1969	5/18-5/31		3										5,424	2.7	21.7
1970	4/19-6/06		34										190,374	95.2	761.5
1971	4/18-5/15		159										769,481	384.7	3,077.9
1972	4/30-5/20		397										600,453	300.2	2,401.8
1973	4/23-5/26		176										306,358	153.2	1,225.4
1974	4/22-5/04		143		Mostly Ribbon - Some Sieve and Hair				$0.60-0.75				580,588	290.3	2,322.4
1975	4/25-5/10		328										916,919	458.5	3,667.7
1976	4/21- ?		279										485,043	242.5	1,940.2
1977	4/27-12/31		104										417,000	208.5	1,668.0
1978	4/20-4/30		66	165	23%		50%				27% [b]		141,268	70.6	565.1
1979	4/25-5/03		97	200									474,242	237.1	1,897.0
1980	4/23-4/30	10	458	200	60%	$1.25	40%	$0.85					603,880	301.9	2,415.5
1981	4/25	12	196	200	38%	$1.25	60%	$0.85			2% [b]	$0.60	122,532	61.3	490.1
1982	5/05-5/08	73	152	187	83%	$1.42	11%	$0.95			6% [b]	$0.74	291,430	145.7	1,165.7
1983	4/27	12	185	187	51%	$2.00-2.45	35%	$1.50-1.70			14% [c]		298,362	149.2	1,193.4
1984	Season Closed [d]		225 [e]	187											
1985	5/06 & 5/08	20	106	169	51%	$1.25	49%	$0.50					60,832	30.4	243.3
1986	4/30-5/03	86	29	142	97%	$1.75		$0.80			[b]	$0.80	95,205	47.6	380.8
1987	4/15-4/17	44	59	103	90%	$1.70		$0.85			[b]	$0.80	176,485	88.2	705.9
1988	4/29 & 4/30	12	159	103	64%	$1.50	24%	$0.75-1.00			12% [b]	$0.75-1.00	194,762	97.4	779.0
1989	Season Closed [f]			110											
1990	4/21-4/22	16	134	104	37%	$0.99	6%	$0.52			57% [b]	$0.88	237,575	118.8	950.3
1991	5/11-5/17	95	48	195					100%	$0.75-0.85			215,147	107.6	860.8
1992	4/24-4/30	101	217	243	21%	$0.70			76%	$0.40	3%		504,663	252.3	2,018.7
1993	4/19-4/24	114	83	268					100%	$0.55			325,181	162.6	1,300.7
1994	Season Closed [g]			110											
1995	Season Closed [g]			0											
1996	Season Closed [g]			0											
1997	4/25 & 4/26	26.4	45	56.4					100%				52,800	26.4	211.2
1998	4/22-4/27	62	35	464	10%	$0.80			84%	$0.50			34,695	17.3	138.8

[a] Indicates the annual removal of reproductive capacity from the population based on the assumption that average fish roe recovery is 10%, and 80% of spawn-on-kelp harvest weight consists of eggs.

[b] Hair kelp.

[c] Mostly Macrocystis spp. Some hair kelp.

[d] Season remained closed due to lack of suitable spawn.

[e] Permits issued.

[f] All Pacific herring commercial sac roe and spawn-on-kelp fisheries in Prince William Sound were closed during the spring of 1989 due to the potential for contamination of catches from the *T/V Exxon Valdez* oil spill.

[g] Season remained closed due to low herring abundance.

Appendix H.7. Pacific herring spawn-on-kelp harvest produced in pounds, Prince William Sound, 1979 - 1998.

Calendar Year	Fishery Dates [c]	Effort: CFEC Permits [d]	Effort: Permits Committed [e]	Effort: Producing Permits [a] Closed [f]	Effort: Producing Permits [a] Open [g]	Guideline Harvest (tons)	Blades per Permit Holder: Closed [f]	Blades per Permit Holder: Open [g]	Spawn-on-Kelp Harvest (tons): Ribbon	Spawn-on-Kelp Harvest (tons): Macrocystis	Spawn-on-Kelp Harvest (tons): Total	Herring Utilized [b] (tons)
1979		2	0									
1980	4/14	14	4	2		8			0.9	0.4	1.3	16.6
1981	4/14	18	18	7		16			8.6	1.1	9.7	120.7
1982	4/29-5/10	25	20	18		26			25.1	0.5	25.5	319.2
1983	4/30-5/04	47	38	26		26			17.7	10.1	27.7	346.7
1984	4/24-5/08	65	45	37		26			6.4	18.8	25.2	315.1
1985	4/25-5/07	81	59	50		40			12.1	28.1	40.2	502.1
1986	4/21-4/28	104	82	81		60			0	72.2	72.2	903.0
1987	4/10-4/21	111	111	108		85			0	61.2	61.2	765.1
1988	4/12-4/23	122	122	119		85			0	123.2	123.2	1,540.5
1989	Season Closed [h]											
1990	4/11-4/26	128	128	122		118			0	98.8	98.8	1,235.3
1991	4/07-4/20	126	126	119		220	1,200		0	202.4	202.4	2,530.5
1992	4/07-4/24	127	127	127		276	1,770		0	242.2	242.2	3,027.7
1993	4/10-4/22	128	124	52		305	1,950		0	106.4	106.4	1,330.5
1994	Season Closed [i]											
1995	Season Closed [i]											
1996	Season Closed [i]											
1997	4/10-5/6	128	116	7	84	725	410	640	0	34.3	34.3	290.5
1998	j	128	36	13	20	823	425	660	0	10.7	10.7	104.3

[a] Number of permits that were successful in producing spawn-on-kelp product. Due to the group cooperation in this fishery production is frequently reported for a few individuals whose pounds did not produce spawn-on-kelp product.

[b] The equivalent harvest of Pacific herring due to stress mortality and the removal of reproductive capacity from the population based on the assumption that 12.5 tons of Pacific herring are used to produce 1 ton of spawn-on-kelp product.

[c] Dates that the fishery was opened to seines for the capture and placement of Pacific herring into pounds.

[d] Prior to 1994, Commissioner's permits issued to applicants registering prior to the March 1 deadline. After 1994, the number of permits represents limited entry permits. Beginning in 1997, permit holders were allowed to operate pounds in open or closed configuration, and required to state intended configuration prior to season.

[e] The number of individuals receiving an equal allocation of the guideline harvest. Prior to 1994 this represents the number of individual pounds constructed by the April 1 deadline. Beginning in 1997, this number represents permit holders stating intended configuration prior to season.

[f] A pound fished in a closed configuration consists of a rectangular floating frame with webbing suspended below, that encloses herring and kelp for period of time during spawning.

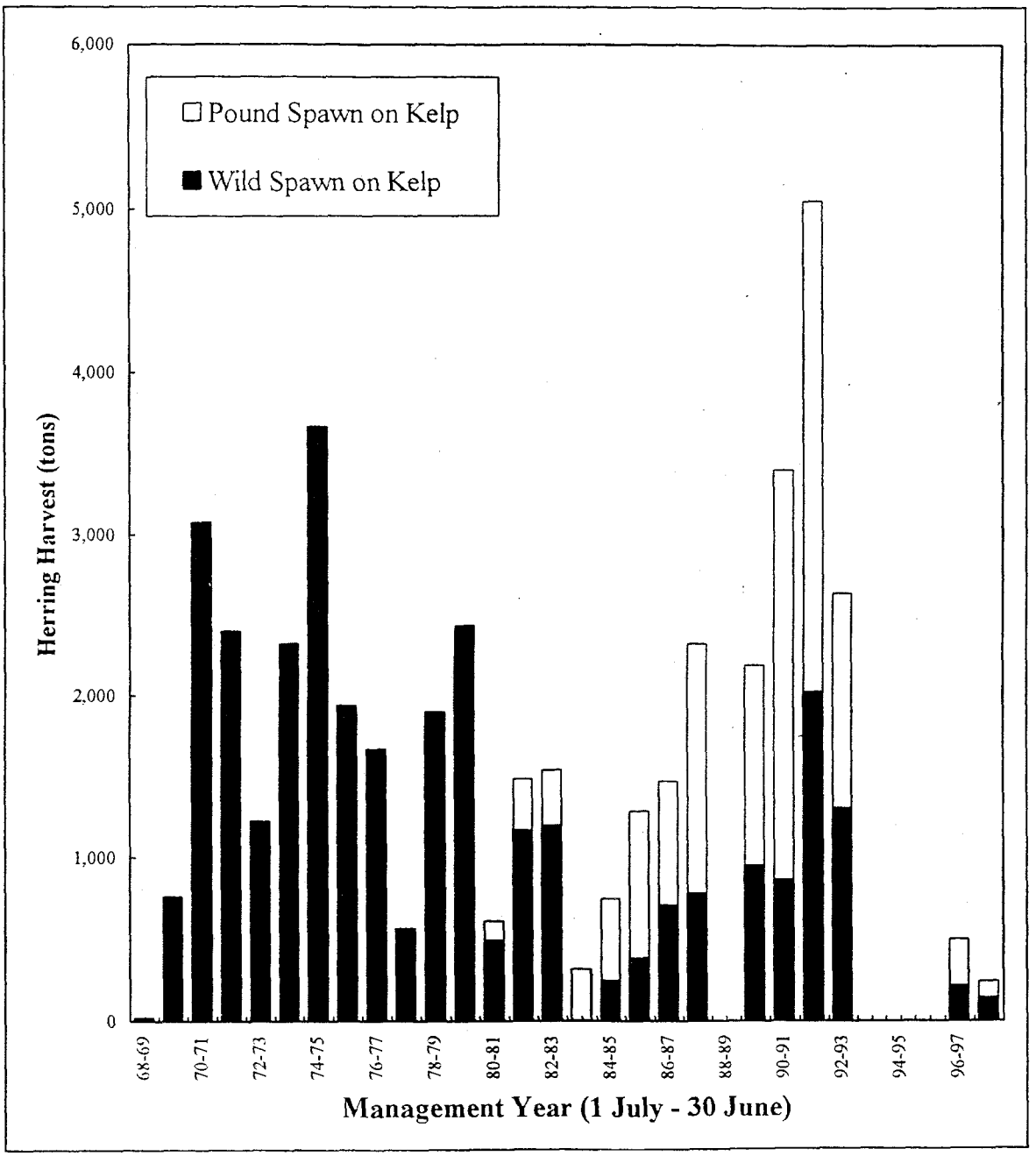
[g] A pound fished in an open configuration consists of a rectangular floating frame with either no webbing suspended below, or with webbing that permits volitional entry and exit of herring on at least one side.

[h] All Pacific herring commercial sac roe and spawn-on-kelp fisheries in Prince William Sound were closed during the spring of 1989 due to the potential for contamination of catches from the *T/V Exxon Valdez* oil spill.

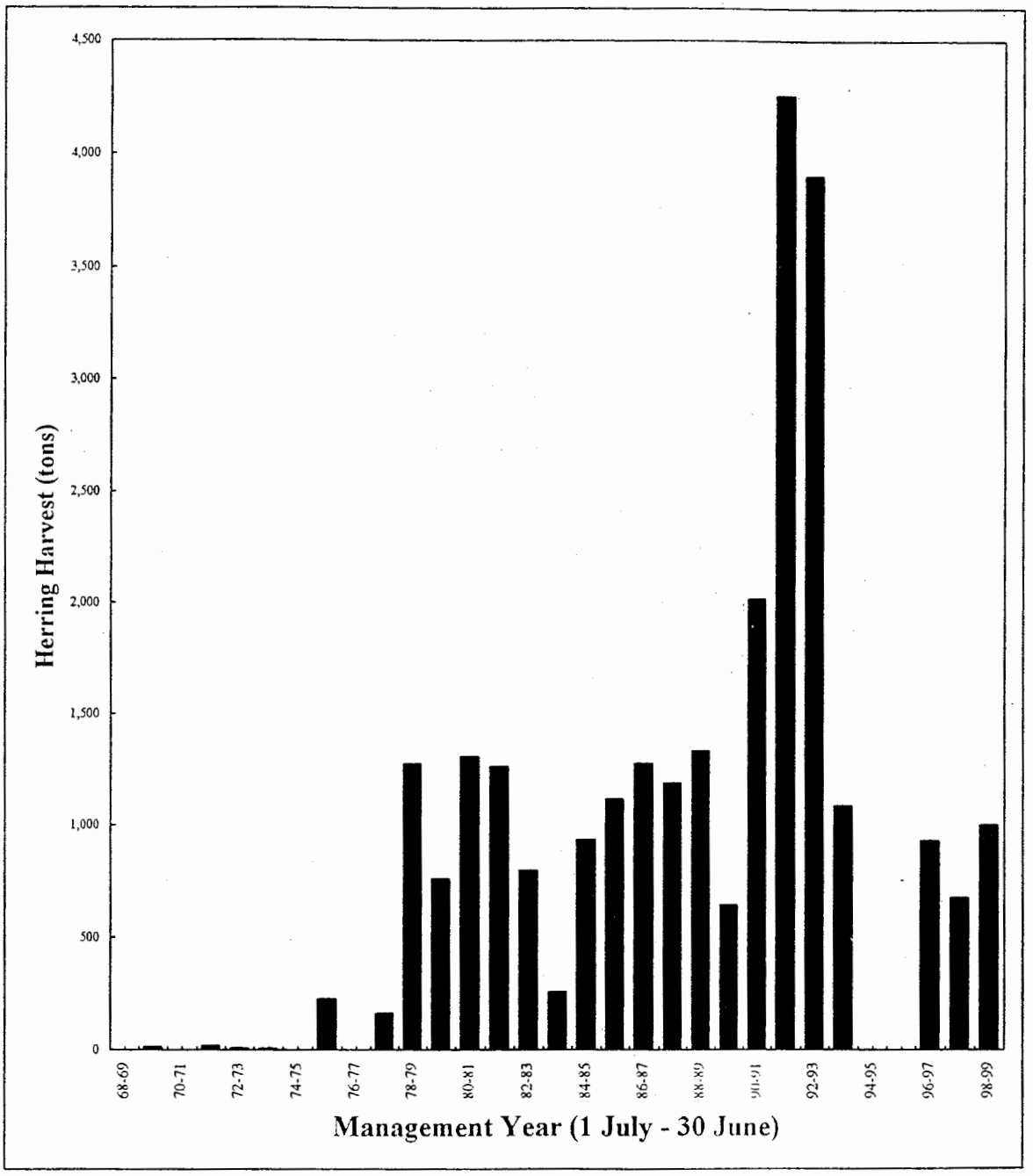
[i] Season closed due to low herring abundance.

j Opening dates for each area were: Montague Island 4/04, Eastern 4/05, Northern 4/09, and Southeastern 4/13. All areas closed by regulation on 12/31/98.

Spawn-on-Kelp Herring Usage
Prince William Sound



Appendix H.8. Prince William Sound commercial spawn-on-kelp herring usage by management year, 1968-1998.



Appendix H.10. Prince William Sound commercial food-and-bait herring harvest, management years 1968-1999.

Appendix H.11. Annual Pacific herring biomass indices for harvest management years 1973-1998 and the forecast of prefishery run biomass for 1999, Prince William Sound.

Harvest Management Year	Total Spring Use and Harvest Mortality [a] (tons)	Aerial Survey Estimates: Peak Biomass Estimate [b] (tons)	Aerial Survey Estimates: Maximum Possible Observed Biomass [c] (tons)	Aerial Survey Estimates: Miles of Spawn [d]	Aerial Survey Estimates: Mile Days of Spawn [e]	Unexploited Escapement Biomass: Spawn Deposition Surveys [f] (tons)	Unexploited Escapement Biomass: Age Structured Analysis [g] (tons)	Pre-Fishery Run Biomass: Age Structured Analysis [g] (tons)	Observed Peak Acoustic Biomass Estimates: Fall (tons)	Observed Peak Acoustic Biomass Estimates: Spring (tons)	Prior Year Forecast (tons)
1973-1974	6,375	41,080	107,290	38.5	75.2						
1974-1975	5,854			34.2	42.4						
1975-1976	2,584	7,330	25,247	32.8	33.7						
1976-1977	2,267	16,830	17,460	39.3	73.5						
1977-1978	1,391	13,410	36,540	28.7	36.3						
1978-1979	4,138	42,100	107,390	54.5	73.2						
1979-1980	6,323	62,110	122,050	50.5	73.9		42,419	46,989			
1980-1981	14,124	77,810	161,690	85.4	140.1		44,903	58,146			
1981-1982	7,861	68,790	97,620	49.0	65.1		41,142	48,633			
1982-1983	3,181	41,850	107,710	67.4	99.8	22,000 [h]	51,368	54,183			
1983-1984	6,604	58,870	158,760	60.1	86.8	58,089	56,967	62,783			
1984-1985	7,679	20,830	60,954	101.2	149.5		69,160	76,254			
1985-1986	11,180	15,180	54,820	72.4	152.3		57,461	68,144			
1986-1987	6,281	26,530	52,192	65.3	155.9		69,904	75,318			
1987-1988	9,871	34,270	67,175	166.3	236.9	53,785	89,408	97,544			43,992
1988-1989	[i]	56,915	186,708	98.4	185.8	49,914	110,787	110,787			54,899
1989-1990	10,103	57,900	145,013	94.1	144.4	127,478	91,889	101,996			51,692
1990-1991	15,196	42,765	141,375	58.0	64.8	140,964	92,517	106,746			96,666
1991-1992	20,752	53,835	130,569	74.7	99.5	128,263	106,091	123,269			121,342
1992-1993	2,360	20,725	109,865	20.4	40.8		28,876	31,012			134,133
1993-1994	151	19,640	154,008	14.6	20.0	17,069	18,647	18,647	20,998		29,787
1994-1995	0	7,113	20,868	20.4	32.3	20,022	20,580	20,580	13,840	14,643	19,009
1995-1996	0	10,691	37,771	27.2	39.1	27,670	23,403	23,403	26,776	25,353	24,332
1996-1997	5,170	10,858	57,114	42.7	56.0	23,171	23,909	28,492	3,086	44,095	37,599
1997-1998	3,849	13,817	50,124	38.7	48.5		29,993	33,222		25,045	38,640
1998-1999											39,557

[a] Represents the common property seine and gillnet sac roe harvest, and equivalent use of herring in closed pound SOK fisheries.

[b] Largest single day aerial estimate of Pacific herring biomass in short tons.

[c] The sum of all daily aerial biomass estimates for a given year.

[d] Total linear miles of spawn.

[e] The sum of the daily observed linear miles of Pacific herring spawn.

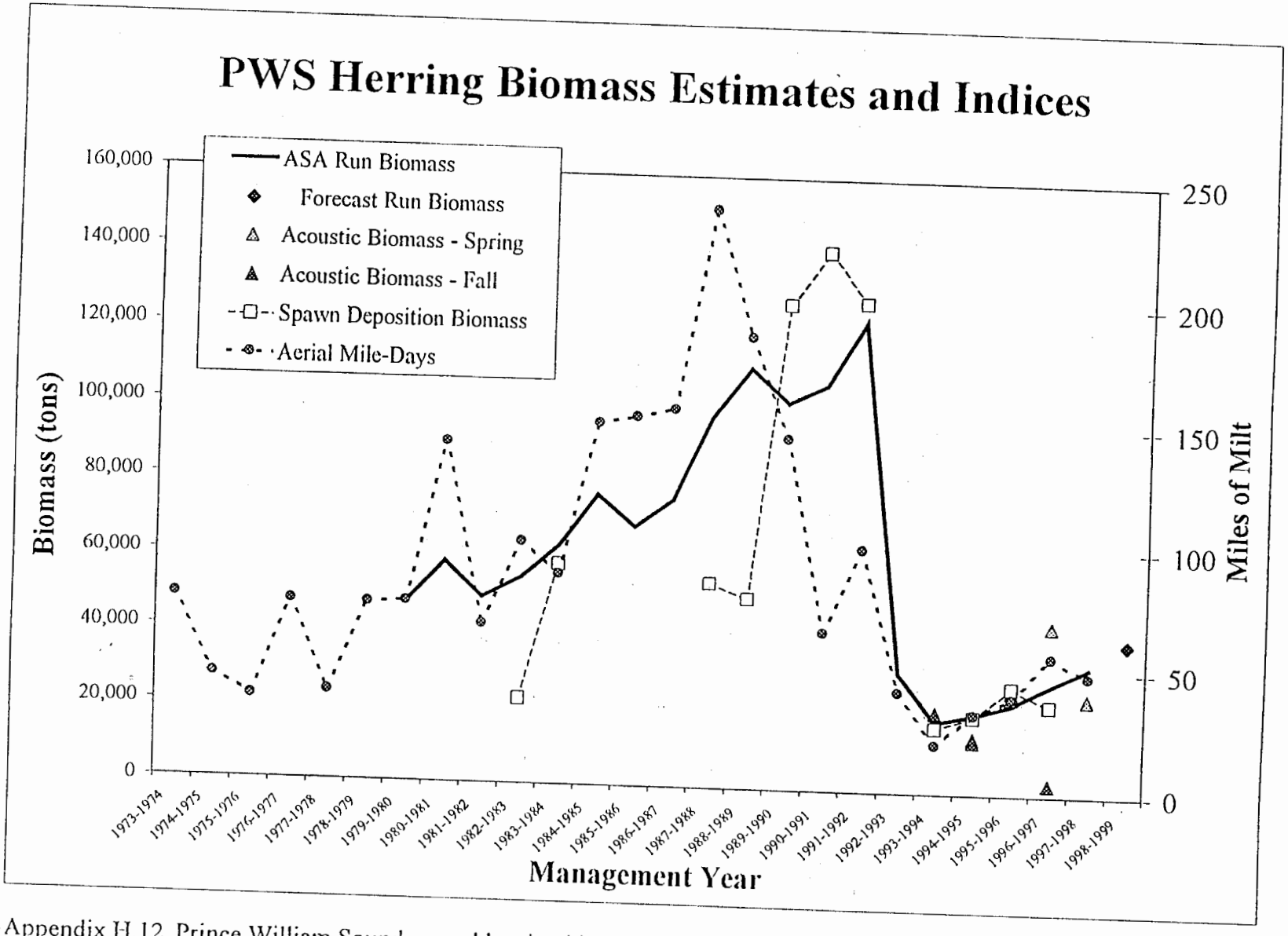
[f] Estimates are made from underwater surveys of spawn deposition.

[g] Unexploited escapement and run biomass estimates from age structured analysis, February 1998.

[h] Partial estimate of spawning biomass from feasibility study.

[i] All Pacific herring commercial sac roe and spawn-on-kelp fisheries in Prince William Sound were closed during the spring of 1989 due to the potential for contamination of catches from the *T/V Exxon Valdez* oil spill.

[j] Preliminary.

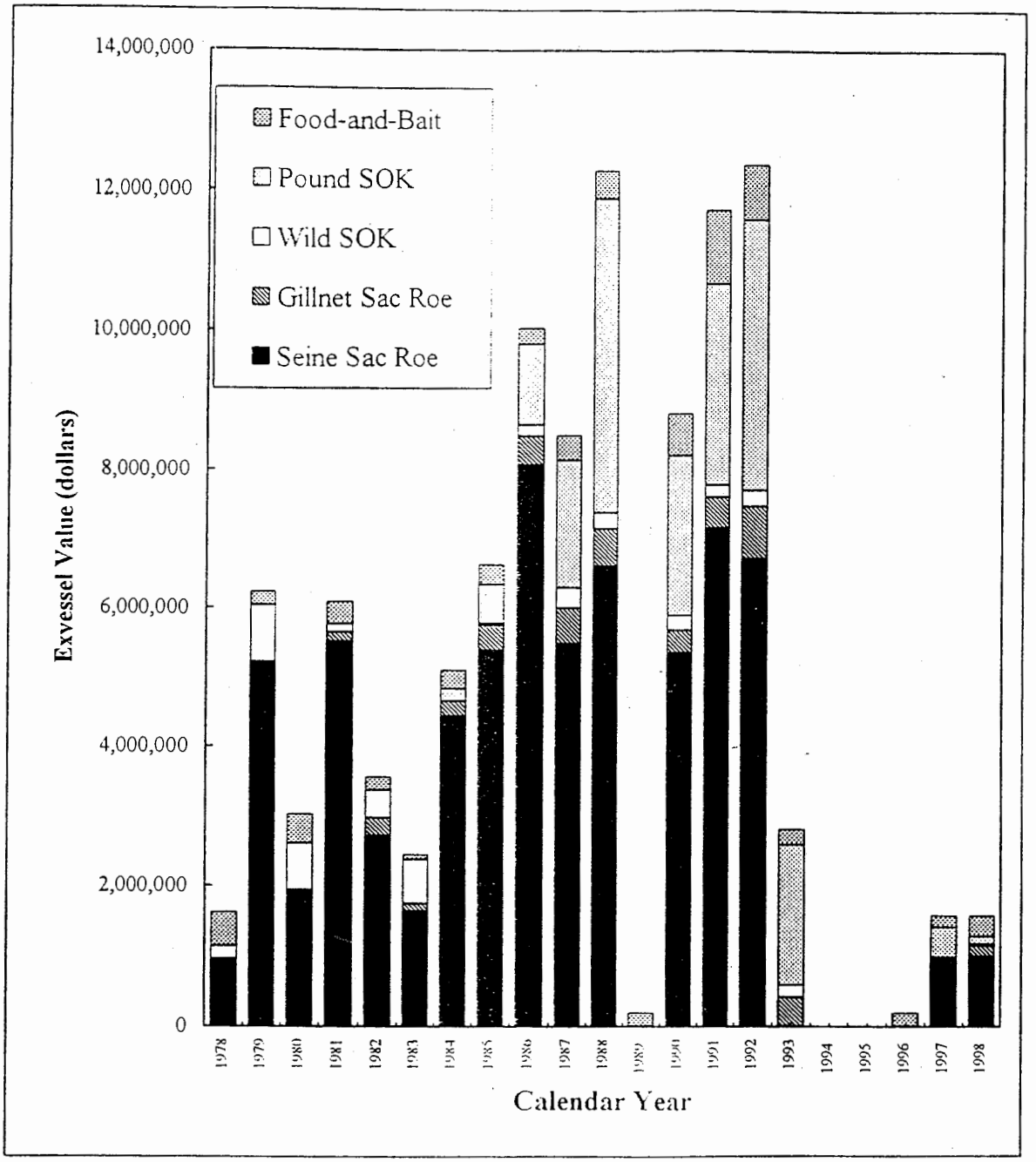


Appendix H.12 Prince William Sound annual herring biomass indices by management year, 1973-1998, and forecast run biomass for 1999 from ASA modeling.

Appendix H.13. Mean price and estimated exvessel value of the commercial Pacific herring harvest by gear type based on verbal post season estimates from processors and permit holders, Prince William Sound, calendar years 1978-1998.

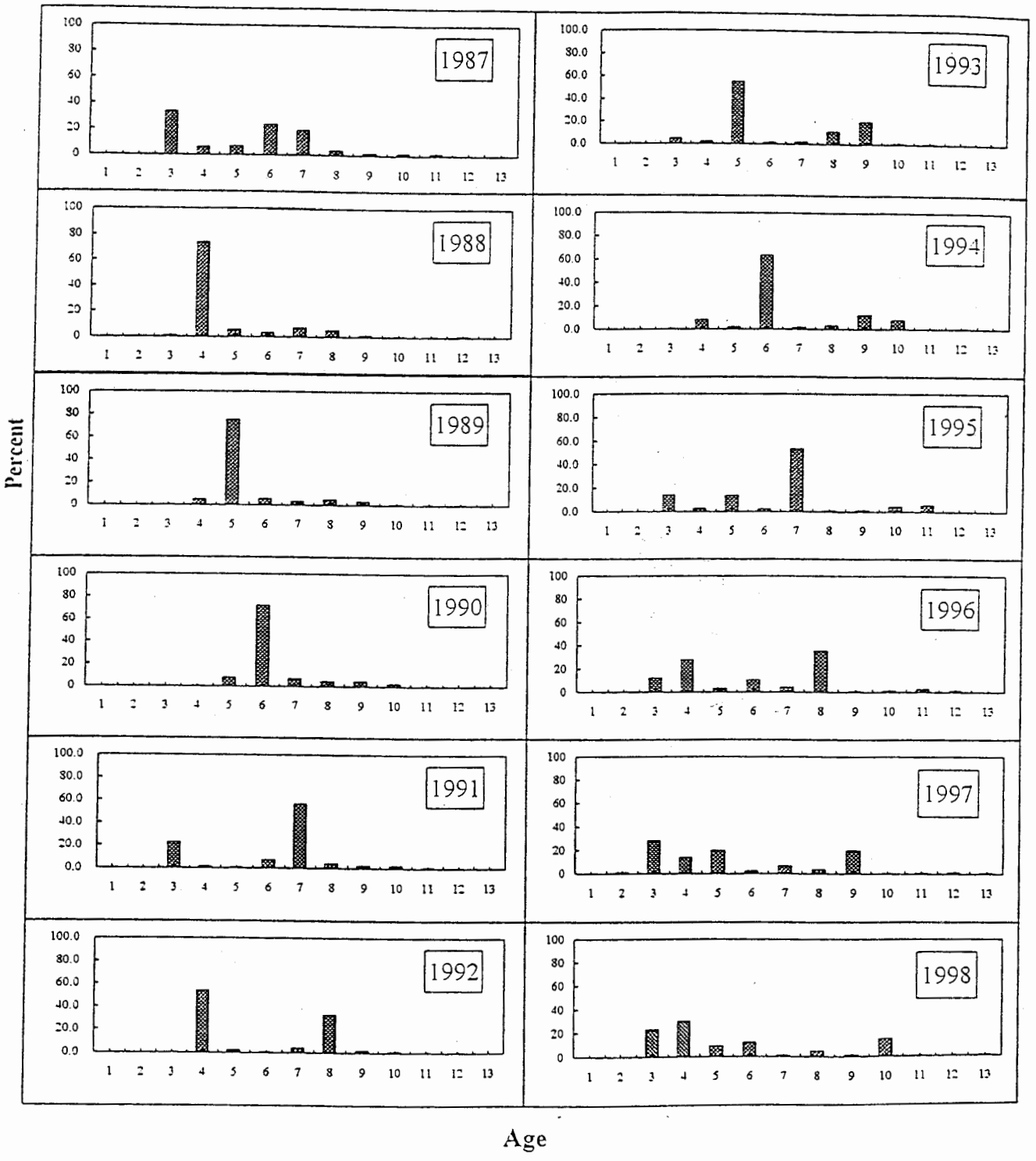
Calendar Year	Sac Roe Fisheries				Spawn-on-Kelp Fisheries				Food-and-Bait Fishery		
	Purse Seine		Gillnet		Wild Spawn on Kelp		Pounds		Mixed Gear		
	Price per ton	Total Value	Price per ton	Total Value	Price per lb	Total Value	Price per lb [a]	Total Value	Price per ton	Total Value	TOTAL VALUE
1978	$ 720	$ 956,800			$ 1.25	$ 175,000			$ 380	$ 489,820	$ 1,621,700
1979	$ 1,260	$ 5,213,880			$ 1.74	$ 821,280			$ 300	$ 196,800	$ 6,231,960
1980	$ 320	$ 1,933,760			$ 1.09	$ 667,080			$ 300	$ 424,800	$ 3,025,640
1981	$ 400	$ 5,508,000	$ 580	$ 135,720	$ 1.00	$ 122,000			$ 260	$ 328,120	$ 6,093,840
1982	$ 380	$ 2,716,240	$ 640	$ 251,520	$ 1.29	$ 397,320			$ 220	$ 194,260	$ 3,559,340
1983	$ 600	$ 1,634,400	$ 1,040	$ 109,200	$ 2.10	$ 634,200			$ 260	$ 70,980	$ 2,448,780
1984	$ 760	$ 4,435,360	$ 640	$ 218,880	NO HARVEST		$ 3.50	$ 176,439	$ 260	$ 265,460	$ 5,096,139
1985	$ 760	$ 5,380,800	$ 900	$ 371,700	$ 0.48	$ 19,200	$ 7.09	$ 569,058	$ 250	$ 279,500	$ 6,620,258
1986	$ 820	$ 8,058,960	$ 920	$ 412,160	$ 1.70	$ 159,800	$ 8.00	$ 1,155,200	$ 180	$ 229,680	$ 10,015,800
1987	$ 1,100	$ 5,480,200	$ 960	$ 511,680	$ 1.70	$ 299,200	$ 15.00	$ 1,836,000	$ 300	$ 356,700	$ 8,483,780
1988	$ 840	$ 6,600,000	$ 1,400	$ 537,000	$ 1.20	$ 232,000	$ 18.00	$ 4,500,000	$ 300	$ 400,590	$ 12,236,500
1989	SEASON CLOSED								$ 300	$ 193,830	$ 193,830
1990	$ 640	$ 5,351,744	$ 640	$ 323,456	$ 0.90	$ 213,840	$ 11.40	$ 2,305,080	$ 300	$ 605,130	$ 8,799,250
1991	$600	$ 7,153,800	$ 600	$ 445,200	$ 0.80	$ 172,160	$ 9.00	$ 2,880,000	$ 250	$ 1,064,625	$ 11,715,785
1992	$ 400	$ 6,713,680	$ 800	$ 752,480	$ 0.46	$ 232,116	$ 8.00	$ 3,875,200	$ 200	$ 780,060	$ 12,353,536
1993	NO HARVEST		$ 400	$ 411,960	$ 0.55	$ 178,860	$ 10.00	$ 2,000,000	$ 200	$ 217,400	$ 2,808,220
1994	SEASON CLOSED								SEASON CLOSED		
1995	SEASON CLOSED								SEASON CLOSED		
1996	SEASON CLOSED								$ 200	$ 187,000	$ 187,000
1997	$ 200	$ 940,600	$ 80	$ 14,080	$ 0.61	$ 32,000	$ 8.00	$ 426,816	$ 250	$ 170,000	$ 1,583,496
1998	$ 300	$ 999,000	$ 375	$ 156,000	$ 0.65	$ 23,000	$ 5.00	$ 107,000	$ 295	$ 296,000	$ 1,581,000

[a] The price per pound for spawn on kelp in pounds is based on the final product weight, not harvest weight.



Appendix H.14 Average annual exvessel value of commercial herring fisheries, Prince William Sound, calendar years 1978-1998.

Prince William Sound Herring Spring Run Biomass Age Composition



Appendix H.15. Percent contribution by weight of each age to spring run biomass, Prince William Sound, 1987-1998.